ORDER NO. VRD-7804-295

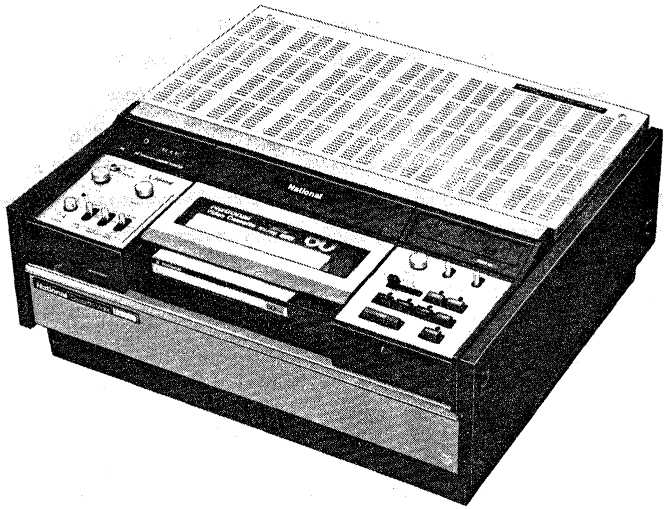
Service Manual

Video Cassette Recorder

NV-9210 ·E ·A ·B

Vol. 1

Summary



SPECIFICATIONS

Power Source:	110, 127, 220, 240V AC, 50Hz
Power Consumption:	Approx. 110 watts
Television System:	CCIR: 625 lines, 50 fields PAL/SECAM colour signal
Video Recording System:	2 rotary heads, helical scanning system Luminance: frequency modulation recording Colour signal: converted subcarrier, direct recording
Audio Track:	2 tracks
Tape Format:	Tape width 3/4 inch (19mm), high density tape
Tape Speed:	95.3mm/s
Record/Playback Time:	60 min. with NV-P26
FF/REW Time:	Less than 3 min. with NV-P26
Heads:	Video: 2 rotary heads Audio/Control: 1 stationary head Erase: 1 full track erase head 1 audio track erase head for audio dubbing
Input Level:	Video: TV Monitor connector (8P) 1.0Vp-p, 75Ω unbalanced VIDEO IN connector (UHF) 1.0Vp-p, 75Ω unbalanced Audio: TV Monitor connector (8P) 0dB, 100kΩ unbalanced MIC jack (PHONE) × 2 −72dB, 600Ω unbalanced LINE jack × 2 −20dB, 100kΩ unbalanced
Output Level:	Video: TV Monitor connector (8P) 1.0Vp-p, 75Ω unbalanced VIDEO OUT connector (UHF) 1.0Vp-p, 75Ω unbalanced Audio: TV Monitor connector (8P) 0dB, 5kΩ unbalanced LINE OUT jack × 2 −6dB, 600Ω unbalanced AUDIO MONITOR OUT jack 0dB, 5kΩ unbalanced HEADPHONE jack −32dB, 8Ω unbalanced RF Modulated: 73dBμ (open voltage), 75Ω unbalanced
Video Horizontal Resolution: (on monoscope test pattern)	Colour: better than 250 lines B/W: better than 350 lines
Audio Frequency Response:	50−15,000Hz
Signal-to-Noise Ratio:	Video: better than 46dB (Rohde & Schwarz noise meter) Audio: better than 45dB
Audio Cross Talk:	Better than 40dB
Operating Temperature:	5°C−40°C
Operating Humidity:	35%−80%
Weight:	30kg
Dimensions:	540(W) × 472(D) × 238(H)mm
Standard Accessories:	1 pc. AC power cord 1 pc. VTR-Monitor connection cable, NV-C15 1 pc. Dust cover, VYC0020
Optional Accessories:	3/4" video cassette tape: NV-P22 Approx. 129m, 20 min. NV-P23 Approx. 186m, 30 min. NV-P26 Approx. 358m, 60 min. Head cleaning tape, NV-P20 Remote control unit, NV-A152-E RF Modulator: Plug-in/Internally Modulated European; RF Converter NV-U47A (UHF) RF Converter NV-U483S (VHF) RF Converter NV-U484S (VHF) Australian; RF Converter NV-480A (VHF) RF Converter NV-481A (VHF)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

(2) 9210

INTRODUCTION

This service manual presents technical information to allow VTR service technicians to understand and service the National 3/4" Video Cassette Recorder Model NV-9210.
The NV-9210, developed by the technical staffs of our Video Recorder Department, has many special features, including feather-touch/non-locking push buttons, aluminum diecast chassis, still picture with manual frame adjustment, timer record switch automatic gain control system for video and audio, dropout/noise compensator and belt drive video head cylinder system (BDC system). In addition to above features, the NV-9210 has two audio tracks for stereophonic recording or audio dubbing, and use of optional RF converter permits playback on any conventional TV set.

FEATURES

1. **Aluminum diecast chassis for rigidity, precision and durability.**
2. **Feather-touch, non-locking push buttons with logical memory controls give full remote capability.**
3. **Automatic cassette elevator and gear driven tape loading systems assures reliability.**
4. **Still picture with manual frame adjustment of tape position.**
5. **Automatic pre-selected time record possible with an optional clock timer.**
6. **Automatic search, and rewind functions.**
7. **Optional RF converter permits playback on conventional TV.**
8. **Two audio tracks permit stereophonic recording and audio dubbing.**
9. **Automatic gain control system for video and audio.**
10. **Dropout and noise compensation.**
11. **Belt drive video head cylinder system (BDC system).**
12. **Internationally patented HPF TM video head.**

③ NV 9210

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④ NV 9210

MAJOR OPERATING COMPONENTS & THEIR FUNCTIONS

TOP VIEW

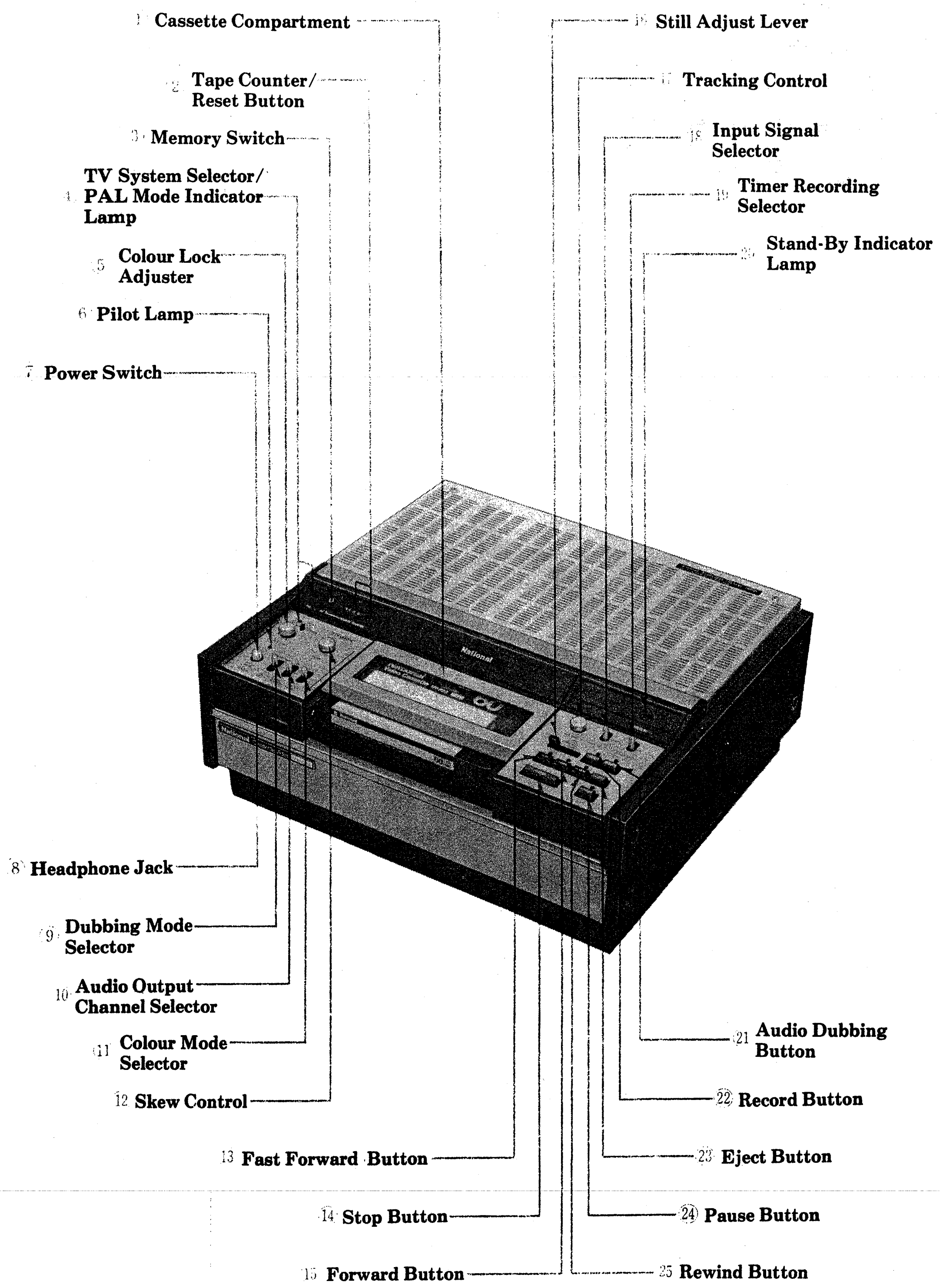
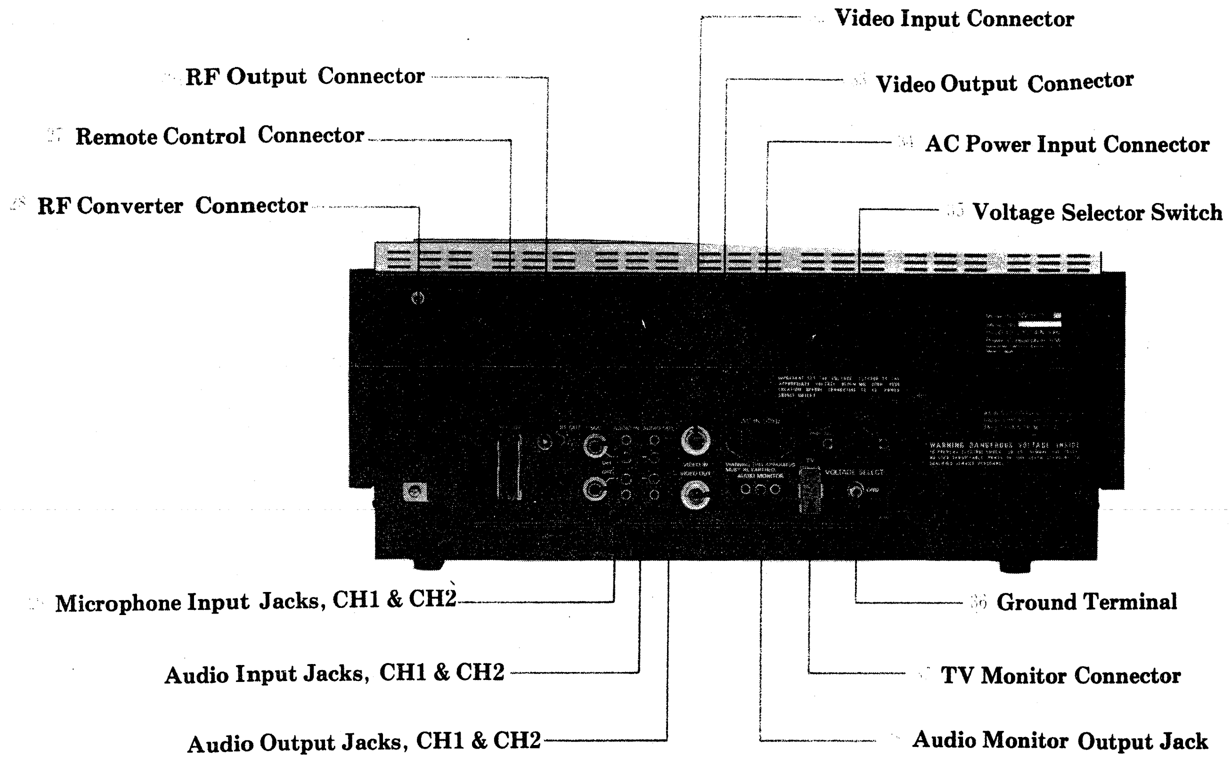

1 Cassette Compartment
2 Tape Counter/ Reset Button
3 Memory Switch
4 TV System Selector/ PAL Mode Indicator Lamp
5 Colour Lock Adjuster
6 Pilot Lamp
7 Power Switch
8 Headphone Jack
9 Dubbing Mode Selector
10 Audio Output Channel Selector
11 Colour Mode Selector
12 Skew Control
13 Fast Forward Button
14 Stop Button
15 Forward Button
16 Still Adjust Lever
17 Tracking Control
18 Input Signal Selector
19 Timer Recording Selector
20 Stand-By Indicator Lamp
21 Audio Dubbing Button
22 Record Button
23 Eject Button
24 Pause Button
25 Rewind Button
National

Fig. 1

⑤ NV 9210

REAR VIEW



Video Input Connector
RF Output Connector
Video Output Connector
Remote Control Connector
AC Power Input Connector
RF Converter Connector
Voltage Selector Switch
Microphone Input Jacks, CH1 & CH2
Ground Terminal
Audio Input Jacks, CH1 & CH2
TV Monitor Connector
Audio Output Jacks, CH1 & CH2
Audio Monitor Output Jack

Fig. 2

㉖ **RF Output Connector (RF Out)**
This connector is the RF output signal of RF converter (available as an optional) which is supplied to a home TV receiver.

㉗ **Remote Control Connector (Remote)**
For connection of optional remote control (NV-A152-E).

㉘ **RF Converter Connector**
For insertion of the selected optional RF converter for unused channel in the area.

㉙ **Microphone Input Jack, CH1 & CH2 (Mic)**
For connection of microphones.

㉚ **Audio Input Jacks, CH1 & CH2 (Audio In)**
Used to record from an audio tape recorder or radio or record player (pin jack terminal).

㉛ **Audio Output Jacks, CH1 & CH2 (Audio Out)**
For connection of a stereo power amplifier, etc.

㉜ **Video Input Connector (Video In)**
For connection of the video camera or video signal.

㉝ **Video Output Connector (Video Out)**
For connection of the TV monitor or video monitor.

㉞ **AC Power Input Connector (AC In)**
Connect the power cord between this connector and an AC power outlet.

㉟ **Voltage Selector (Voltage Select)**
Be sure to select the local voltage by turning the selector to view the voltage indication in the small window.
Voltage Indication: 110, 127, 220, 240 V, AC.

㊱ **Ground Terminal (GND)**
Connect to external ground, if audio hum or buzz is heard while monitoring or playing back.

㊲ **TV Monitor Connector (TV)**
For connection of a TV monitor (having an 8-pin terminal) by using the VTR-monitor connection cable.

㊳ **Audio Monitor Output Jack (Audio Monitor)**
For connection to audio amplifier, audio input of TV monitor unit to allow monitoring of channel 1 or channel 2 or mix audio, selected by Audio Output Channel Selector ⑩.

⑥ NU 9210

① **Cassette Compartment**
For insertion of a cassette tape.

② **Tape Counter/Reset Button (Counter)**
Pressing this button causes the tape counter to return to "000". By beginning the recording from this "000" point, subsequent playback will be more convenient.

③ **Memory Switch (Memory)**
When this switch is set to the "ON" position, the tape will automatically stop during rewind or fast forward when the Tape Counter indicates "000".

④ **TV System Selector (TV System)/PAL Mode Indicator Lamp**
Place the switch "PAL" position when playing back and recording the PAL signal. The red indication lamp will light at "PAL" position of the switch. Place the switch to "SECAM" position when playing back and recording the SECAM signal.

⑤ **Colour Lock Adjuster (Colour Lock)**
This control is preset at factory and under normal operating conditions it will not require any adjustment. If the playback picture shifts in hue or completely loses all colour, try turning the recessed control slowly to the right or left until a normal colour picture reappears.

⑥ **Pilot Lamp**
The Pilot Lamp illuminates when the Power Switch ⑦ is on.

⑦ **Power Switch (Power)**
Press this switch to turn power on. Press again to turn off.

⑧ **Headphone Jack (Headphones)**
Permits listening by headphones.

⑨ **Dubbing Mode Selector (Dub Select)**
Select the application for the unit.
SOURCE/PLAY: Slave player in dubbing system.
NORMAL: Regular recorder/player.
REC: Recorder in dubbing system.

⑩ **Audio Output Channel Selector (Audio Monitor)**
Recording Mode
Recordings can be made at any position of this channel selector, as this switch selects audio output channel monitoring only.
On CH1: Audio channel 1 can be monitored on the TV during recording.
CH2: Audio channel 2 can be monitored on the TV during recording.
MIX: Mixed sound from both channel 1 and channel 2 can be monitored on the TV during recording.
Note: To record a TV programme while monitoring, set the audio output channel selector to CH2.
Playback Mode
On CH1: Sound recorded on channel 1 is played back.
CH2: Sound recorded on channel 2 is played back.
MIX: Mixed sound from both channel 1 and channel 2 is played back.

⑪ **Colour Mode Selector (Colour Mode)**
Place the selector to "AUTO" when you regularly use.

⑫ **Skew Control (Skew)**
Used to correct a slight right or left bend in the upper part of the playback picture.

⑬ **Fast Forward Button (FF)**
When this button is pressed, the tape is forwarded rapidly to the take-up reel.

⑭ **Stop Button (Stop)**
Used to stop the tape movement.

⑮ **Forward Button (FWD)**
Pressing this button causes the tape to start playback. If Record Button ㉒ is held down and then this button is pressed, the unit will go into recording mode.

⑯ **Still Adjust Lever (Still Adj)**
During playback, when the Pause Button ㉔ is pressed the still image will appear; if a noise band is seen in the picture, move the Still Adjust Lever ⑯ to right several times to cause the noise band to move to a position less noticeable in the picture.

⑰ **Tracking Control (Tracking)**
Normally left in its center "FIX" detent position, and if occasionally tapes made on other video cassette recorders will exhibit strips of snow noise or streaks appearing as diagonal banding on the playback picture, move the Tracing Control ⑰ slowly to the left or right until the best picture is seen. When finished, always return the control to its center detent position.

⑱ **Input Signal Selector (Input Select)**
TV: For recording by connecting to a TV monitor.
LINE: For recording by connecting to a video camera or video signal source.

⑲ **Timer Recording Selector (Timer REC)**
ON: For recording with the timer.
OFF: Usually set to this position.

⑳ **Stand-By Indicator Lamp (Stand By)**
The Stand-by Indicator Lamp shows "ON" while the cassette tape is being loaded to the tape guide or unloaded from the tape guide.

㉑ **Audio Dubbing Button (Audio Dub)**
Pressing this button during playback permits audio dubbing.

㉒ **Record Button (REC)**
When this button is pressed, sound and picture appear on the TV monitor.

㉓ **Eject Button (Eject)**
To insert or remove a cassette tape, press this button, and the Cassette Compartment ① will be elevated.
Press this button while the tape is moving such as playback, fast forward and rewind, the Cassette Compartment ① will be elevated in a few seconds.

㉔ **Pause Button (Pause)**
When this button is pressed, the tape stops and pause lamp is on.
To resume tape movement, press this button again and pause lamp is off.

㉕ **Rewind Button (REW)**
When this button is pressed the cassette tape is rewound rapidly to the supply reel. To move next operation, the Stop Button ⑭ has to be pressed.

GENERAL CONNECTION & APPLICATIONS

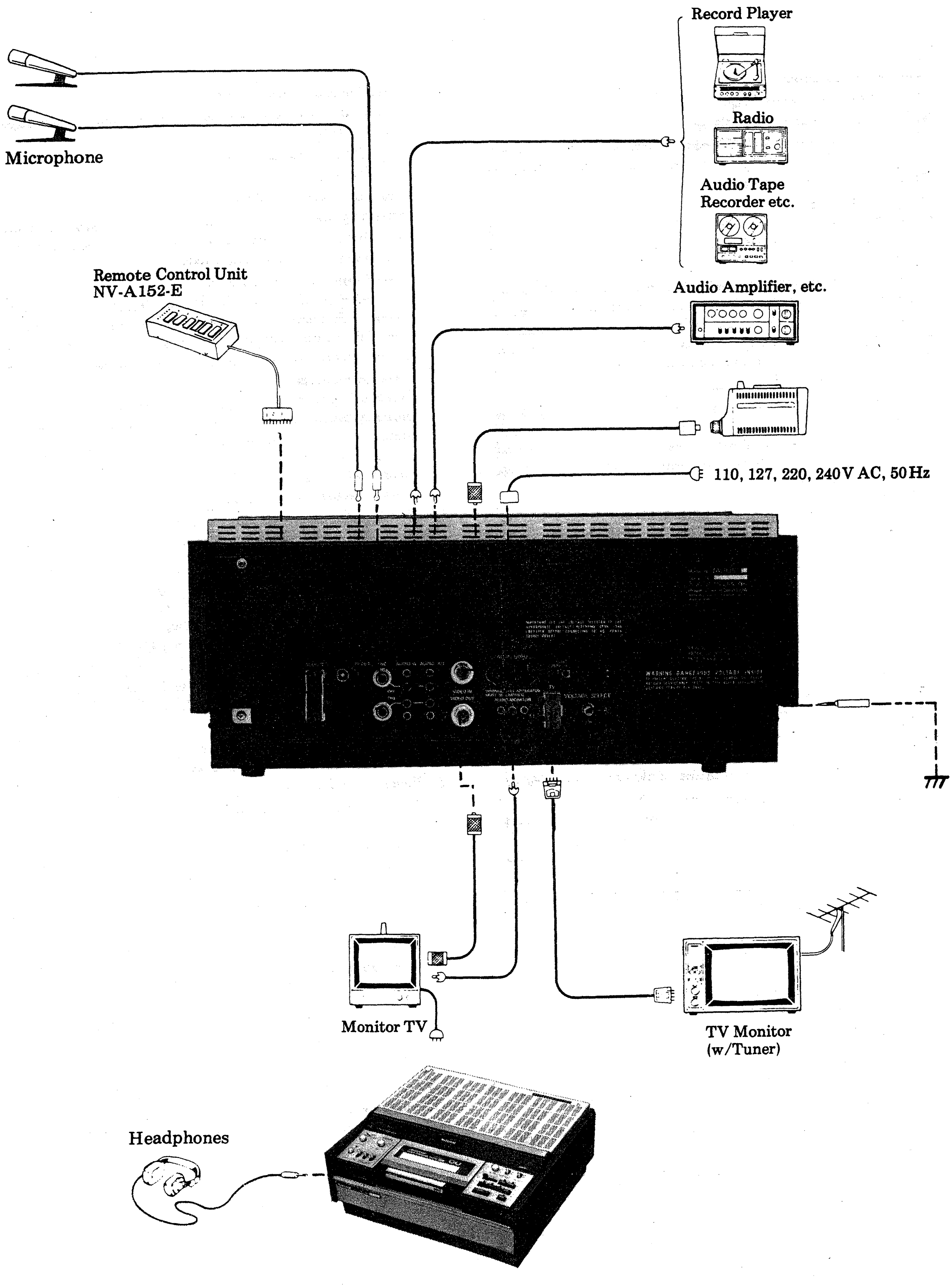

Record Player
Radio
Audio Tape Recorder etc.
Microphone
Audio Amplifier, etc.
Remote Control Unit NV-A152-E
110, 127, 220, 240V AC, 50Hz
Monitor TV
TV Monitor (w/Tuner)
Headphones

Fig. 3

⑦

ORDER NO. VRD-7804-295

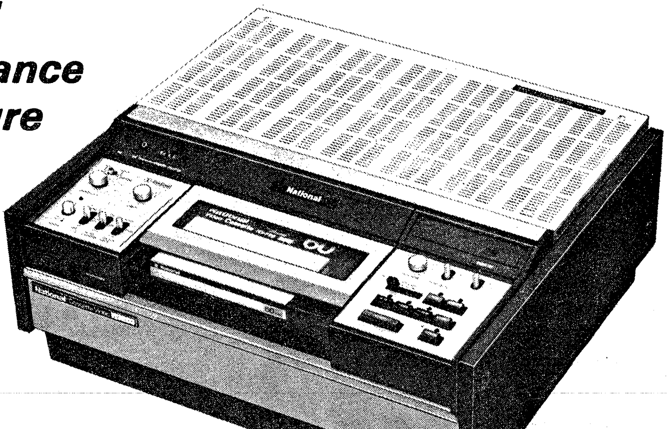
Service Manual

Video Cassette Recorder

NV-9210 -E -A -B

Vol. 2

Disassembly Method
Mechanical Maintenance Procedure
Mechanical Trouble-Shooting Guide
Electrical Adjustment



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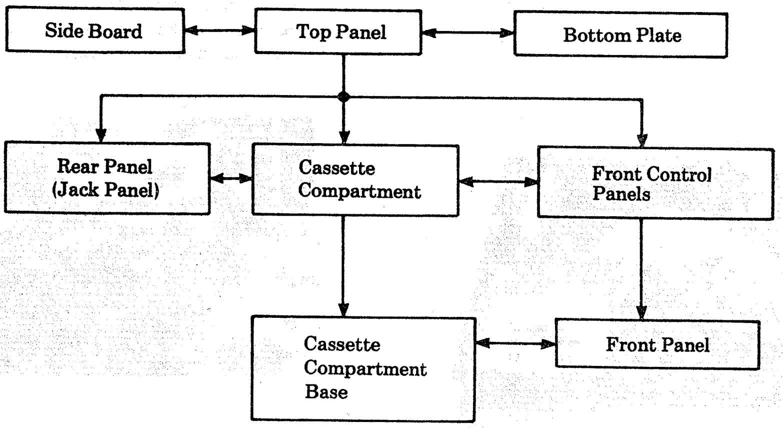
DISASSEMBLY METHOD

GENERAL


Side Board
Top Panel
Bottom Plate
Rear Panel (Jack Panel)
Cassette Compartment
Front Control Panels
Cassette Compartment Base
Front Panel

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1. **Removal of the Side Boards**

   Loosen the 8 screws (A) on both sides until the boards separate from the deck frame.
   (These screws do not separate from the boards.)

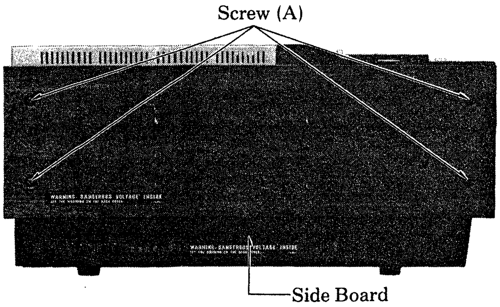
Screw (A)
Side Board

Fig. 1

2. **Removal of the Top Panel**

   Unscrew the 2 screws (B) and remove the Top Panel.

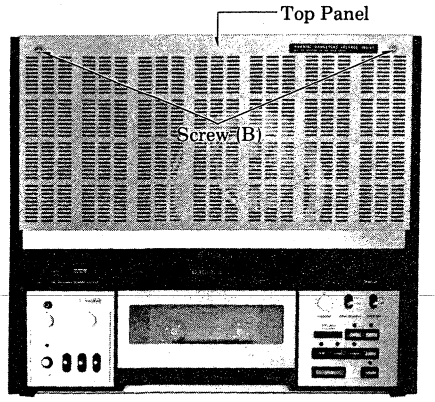
Top Panel
Screw (B)

Fig. 2

3. **Removal of the Bottom Plate**

   Unscrew the 4 screws (C) and remove the Bottom Plate.

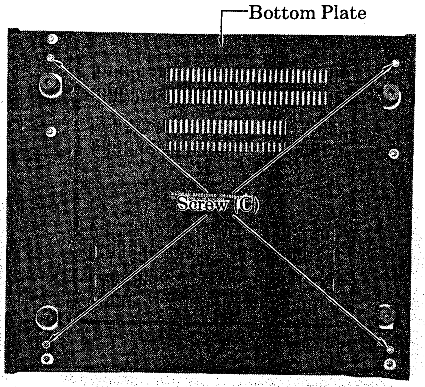
Bottom Plate
Screw (C)

Fig. 3

4. **Removal of the Cassette Compartment**

   Supply power to the unit, and press the power switch ON.
   Press the EJECT button to raise the cassette compartment.
   Unscrew the 4 screws (D) securing the cassette compartment to the cassette compartment base and remove the cassette compartment.

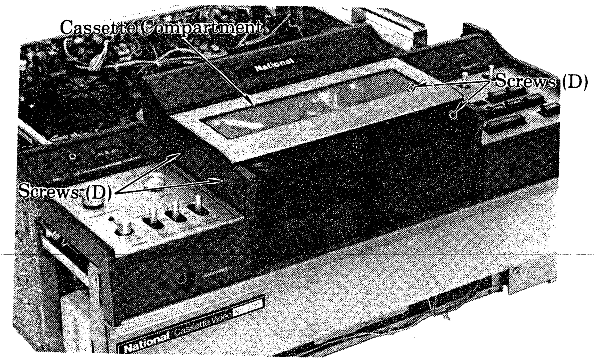
Cassette Compartment
Screws (D)
Screws (D)

Fig. 4

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5. Removal of the Front Panel

Pull off the skew & tracking & APC knobs (E), the still knob (F). Unscrew the 5 screws (H) securing the Front Control Panels to the unit and remove the Front Control Panels.

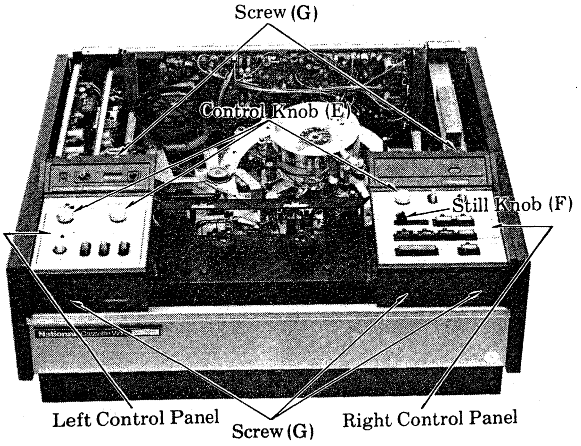

Screw (G)
Control Knob (E)
Still Knob (F)
Left Control Panel
Screw (G)
Right Control Panel

Fig. 5

6. Removal of the Rear (Jack) Panel

Unscrew the 4 screws (I) and remove the Rear (Jack) Panel.

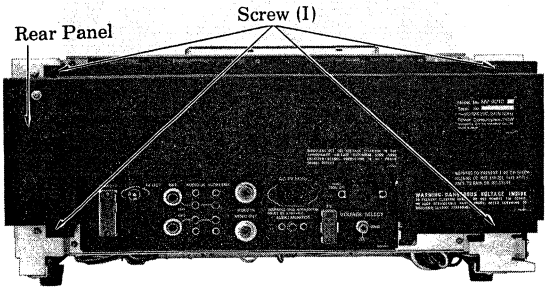

Rear Panel
Screw (I)

Fig. 6

7. Removal of the Front Panel

Unscrew the 4 screws (J) and remove the Front Panel.

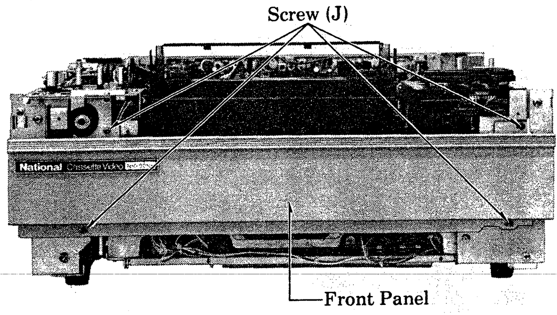

Screw (J)
Front Panel

Fig. 7

8. Removal of the Cassette Compartment Base

Unscrew the 2 screws (K) securing the cassette compartment base to the rack gear shaft and remove the cassette compartment base. Take care not to lose the sword tooth washers.

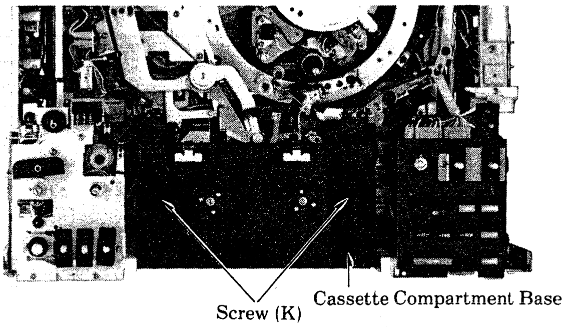

Screw (K)
Cassette Compartment Base

Fig. 8

Ⓜ NV-9210

MECHANICAL MAINTENANCE PROCEDURES

1. CYLINDER UNIT ASSEMBLY REPLACEMENT & ADJUSTMENT

A. Replacement Procedure

1. Remove the Top Panel, the Bottom Plate, the right side board and the tuner unit. (Refer to section "DISASSEMBLY METHOD", Page 2-1).
2. Place the unit vertically so that the left panel side is facing down.
3. Unscrew the 2 screws (A) securing the Transport Circuit Board to the frame.
   Remove the belt guide angle and the belt guide plate.

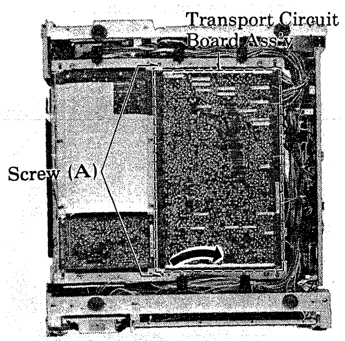

Transport Circuit Board Assy
Screw (A)

Fig. 1

4. Remove the control belt.
5. Unsolder the leads (Blue color) from the P.C board of P627 and separate them from the wire harness.
   Remove the connectors of P51 & P55 on the Head Amp. Circuit Board Assy (VEP0531A) and P23 on the Servo Control Circuit Board Assy (VEP0266C).
   (When removing connector, remove the P.C Board Assy from the frame.)

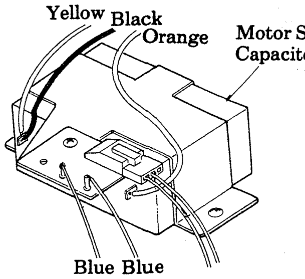

Yellow
Black
Orange
Motor Start (MS) Capacitor
Blue
Blue

Fig. 3

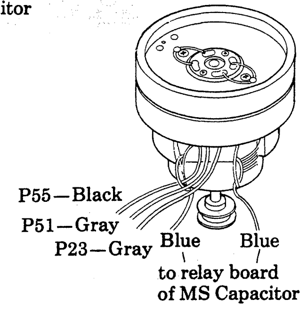
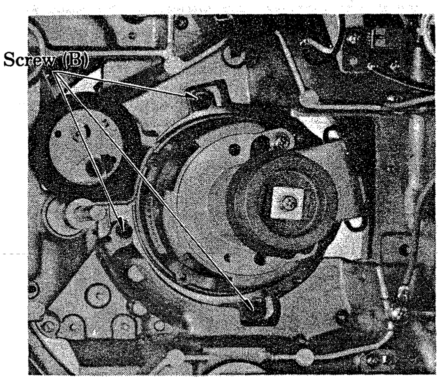

P55—Black
P51—Gray
P23—Gray
Blue
Blue
to relay board of MS Capacitor

Fig. 2

6. Loosen the wire clamper.
7. Unscrew the 3 bolts (B) holding the cylinder unit and remove the cylinder unit assy from the chassis.



Rear View

Fig. 4

8. Mount new cylinder unit assembly, and reverse the above steps to complete the installation.
   Note: Do not remove the pins for setting position of the cylinder unit from the chassis.

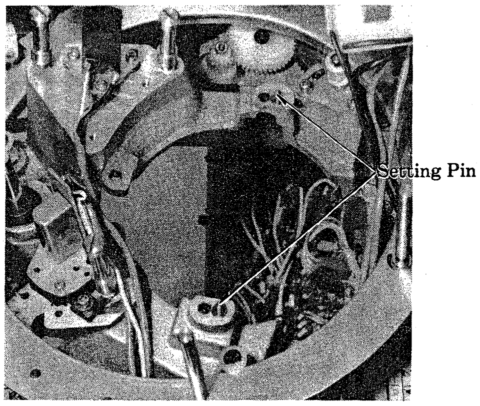

Setting Pin

Fig. 5

9. Notes on assembly:
   (a) Wipe and clean the mounting surface of the cylinder unit and chassis before assembling.
   (b) After assembly, wipe and clean the tape contacting portion of the cylinder unit assembly with a soft cloth.
   (c) Also clean the video heads with head cleaner (VFK27).

B. Adjustment Procedure

When the cylinder unit assembly is replaced, the tape interchangeability should be checked. See the "TAPE INTERCHANGE ABILITY ADJUSTMENT", page 3-2 for details.

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2. TAPE INTERCHANGEABILITY ADJUSTMENT

- * Equipment: Oscilloscope, Screw driver (+) (−), Hex wrench (VFK76), Reference Tape (VFM2181D)
- * Adjustment Point: Tape Transportation
- * Test Point: Envelope...TP506 (Head Amp Board, VEP0531A)
  Playback Shifter...TP206 (Servo Control Board, VEP0266C)
  Audio Azimuth...CH1/TP404
  CH-2/TP409

1. **Connect the scope probe to TP506 on the Head Amp Board (VEP0531A).**
2. **Connect a TV monitor and playback the recorded reference tape (VFM2181D) at the color bars portion.**
3. **Limiter Post (C) Adjustment**

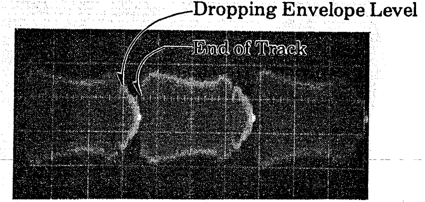

Fig. 6

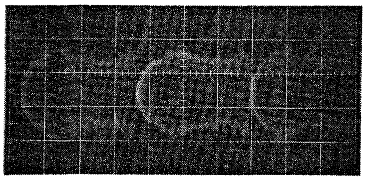

Fig. 7

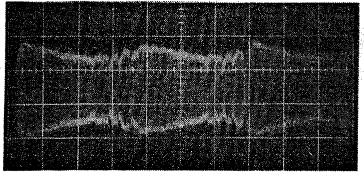

Fig. 8

1) Examine the oscilloscope signal, and if there is a drop of envelope level at the end of a track (see Fig. 6) adjust the limiter post (C) height to obtain as flat an envelope as possible at the end of the track. (See Fig. 8).
To be certain that this adjustment has been done properly, rotate the tracking control so that mistracking occurs.
The total output will be reduced, but the flatness at the end of the track should only change slightly.
If there is a large change of flatness at the end of the track, the limiter post (C) height must be readjusted.
2) After the limiter post (C) height has been adjusted, check to be sure that the tape is riding smoothly on the limiter post (C). Be sure the edges of the tape are not curling against the edges of the limiter post (C).
If this problem does exist, adjust the tilt of the audio/control head to force the tape up or down as required.
The tilt can be adjusted with the 2 hex screws (in front of and in back of the head). (See Fig. 11).

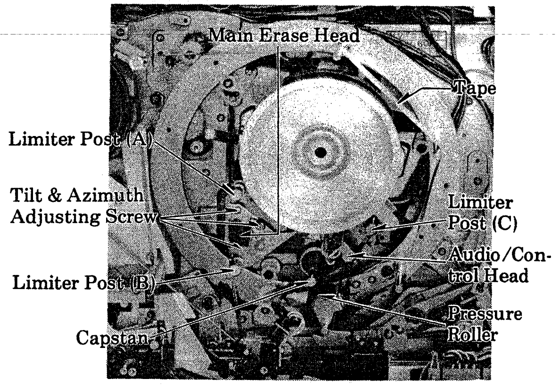
Main Erase Head
Tape
Limiter Post (A)
Tilt & Azimuth Adjusting Screw
Limiter Post (C)
Audio/Control Head
Limiter Post (B)
Pressure Roller
Capstan

Fig. 10

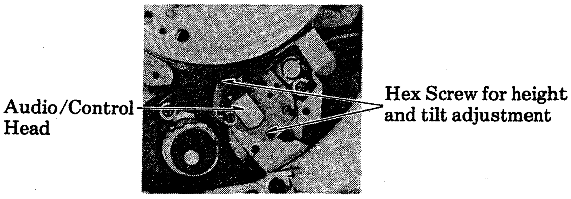
Audio/Control Head
Hex Screw for height and tilt adjustment

Fig. 11

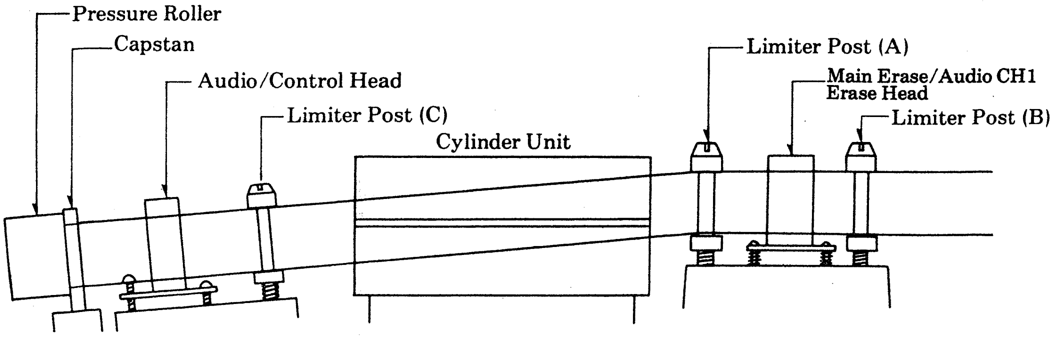
Pressure Roller
Capstan
Audio/Control Head
Limiter Post (C)
Cylinder Unit
Limiter Post (A)
Main Erase/Audio CH1 Erase Head
Limiter Post (B)

Fig. 9

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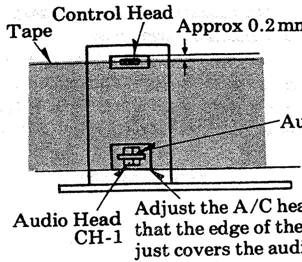
3) After adjusting the audio/control head tilt, the height of head must be checked. Adjust the head height if necessary. To adjust height, 2 hex screws must be turned equally so that "TILT" won't be changed.



Adjust the A/C head height so that the edge of the tape just covers the audio CH-1 head as shown.

Fig. 12

4. **Limiter Post (A) and Limiter Post (B) and Main Erase Head Adjustment**

1) Examine oscilloscope signal and if there is a drop of envelope level at the beginning of a track, (see Fig. 7) adjust the height of the limiter post (A) to obtain as flat an envelope as possible. (See Fig. 8).
As with adjustment of limiter post (C) height, rotate tracking control so that mistracking occurs.
Again check for flatness of envelope at the beginning of the track, and readjust the limiter post (A) height if necessary.
2) After adjusting limiter post (A), be sure the edges of the tape are not curling against the edges of this post.
If this is the case, change the height of the post (B) situated next to the main erase head to correct this problem as necessary.

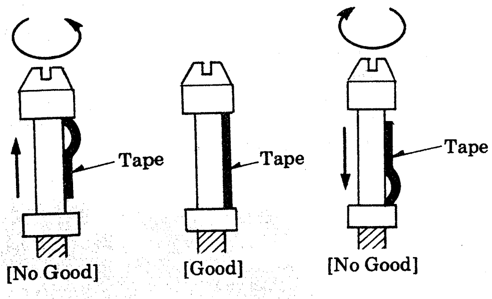
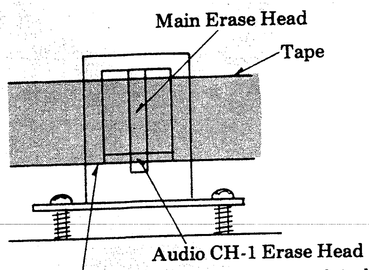


Fig. 13

3) If the limiter post (A) and the limiter post (B) have been readjusted, the height of the main/audio CH-1 erase head must be adjusted as shown below.
To adjust height, the 3 screws must be turned equally so that "TILT" or "AZIMUTH" won't be changed.



Adjust this head height so that the edge of the tape just covers the audio CH-1 erase head as shown.

Fig. 14

5. **Confirmation of Proper Transport Adjustment**

1) Connect scope probe to TP506 on the Head Amp Board (VEP0531A).
2) Adjust the tracking control on the front panel for maximum envelope.
3) Now connect the scope to TP206 on the Servo Control Board (VEP0266C).
4) While watching the monitor and the scope at the same time, vary the tracking control first in one direction to just before the point where mistracking noise occurs on the monitor. Then turn the tracking control in the other direction to just before the point where mistracking noise occurs on the monitor. As the tracking control is turned between these points-the waveform at TP206 should shift 7 msec or more.

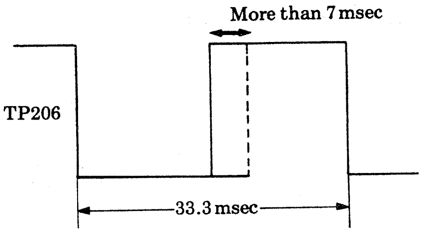


Fig. 15

If the transport is not adjusted well, a mistracking noise appear near the switching line first when the tracking control is varied. In this case, a lack of envelope at the end of the track causing a mistracking noise to appear at the above switching line (Limiter Post (C) misadjusted).
If the shift is less than 7 msec, then the transport should be re-adjusted.

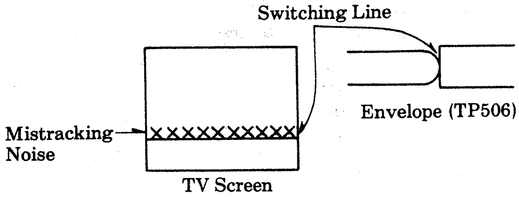


Fig. 16

6. **Audio/Control Head Position Adjustment**

1) Place the tracking control in the "FIX" Position.
2) Connect the scope probe to TP506 on the Head Amp Board (VEP0531A).
3) Loosen the 2 screws which hold the A/C head assembly and move the head assembly along the tape path untill the FM envelope at TP506 becomes maximum.
It should not be necessary to move the A/C head by more than 1.6 mm (approximately the thickness of a nickel).
Tighten the screws.

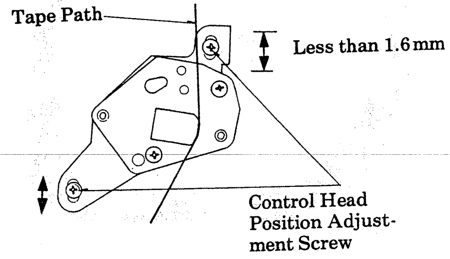


Fig. 17

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7. **Confirmation of A/C Head Positioning**
   1) Place the tracking control in the "FIX" position.
   2) Connect the scope to TP206 on the Servo Control Board (VEP0266C).
   3) Watching the monitor and scope at the same time, turn the tracking control clockwise from "FIX" to just before the point where mistracking noise appears on the monitor.
      At this point, the waveform at TP206 should have shifted 3 msec ± 1 msec.
      Then turn the tracking control counter-clockwise to FIX, then from FIX keep turning counter-clockwise to just before the point where mistracking noise appears on the monitor.
      At this point, the waveform at TP206 should have shifted 3 msec ± 1 msec in the opposite direction.

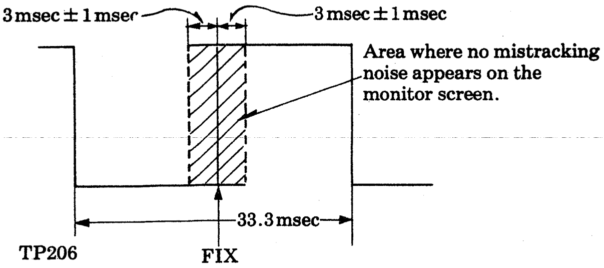

3msec ± 1msec
3msec ± 1msec
Area where no mistracking noise appears on the monitor screen.
33.3msec
TP206
FIX

Fig. 18

3. VIDEO HEAD DISC (Upper Cylinder) REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure:

1. Unsolder the lead wire of the video heads from the head relay board.
2. Unscrew the 2 screws (A) and remove the video head disc (upper cylinder).
3. Clean the flange and bottom and internal surfaces of the new video head disc with a soft cloth dampened with alcohol or freon liquid.
4. Place the new video head disc on the head disc base so that the screw holes match.
   Tighten the 2 screws (A).
5. Solder the lead wires to the head relay board.

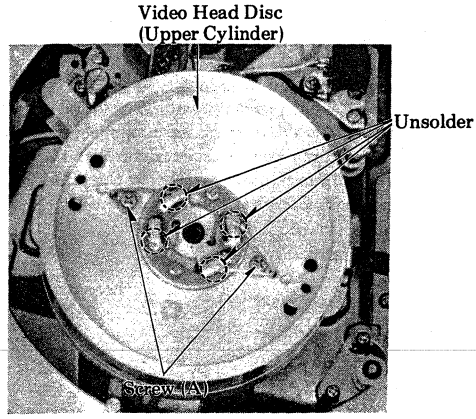
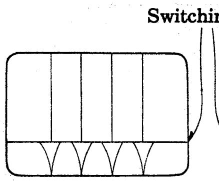

Video Head Disc
(Upper Cylinder)
Unsolder
Screw (A)

Fig. 19

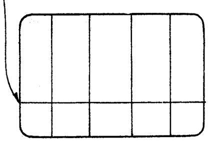
B. Adjustment Procedure:

1. **Video Head 180 Degree Adjustment (Dihedral)**

   180 Degree adjustments are very seldom required when replacing the video head disc unit.
   However, if the 180 Degree adjustment is incorrect, a form of distortion shown in Fig. 20 will be seen on the monitor during playback. (Dihedral Error). To adjust for 180 degrees, it is necessary to use the eccentric driver (VFK0126).


Switching Line

Dihedral Error
Fig. 20



No Dihedral Error
Fig. 21

1) Place the eccentric driver in one of the four holes. Make sure that one head and one head only is adjusted for 180°.
   Remember which head is being adjusted, and always make 180° adjustments by this head.
2) Turn the eccentric driver until the eccentric portion contacts the head base.
3) Turn the driver an additional 1/16 turn.
4) After removing the driver, playback the recorded reference tape and check for dihedral distortion at the top of the picture (or at the bottom, at the switching point).
5) If the situation has improved, stop the tape, and advance the eccentric driver another 1/64 turn. Continue steps (4) and (5) until all dihedral error is removed.
6) If the situation got worse in step (4), use the driver on the opposite side of the same video head.
   Advance the driver in very small increments (less than 1/32 turn) and check the playback between each step for diminishing dihedral error.

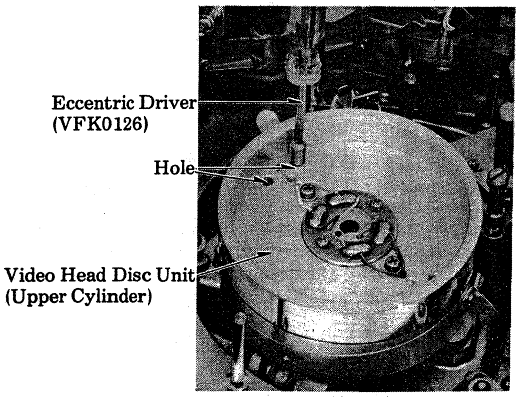

Eccentric Driver
(VFK0126)
Hole
Video Head Disc Unit
(Upper Cylinder)

Fig. 22

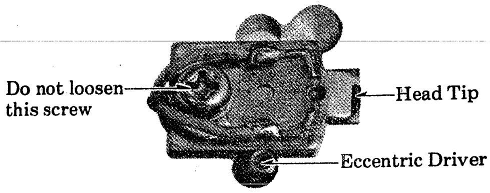

Do not loosen this screw
Head Tip
Eccentric Driver

Fig. 23

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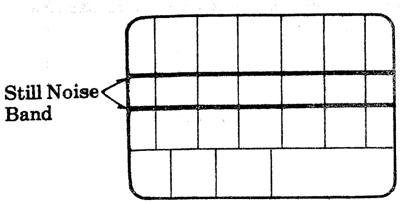
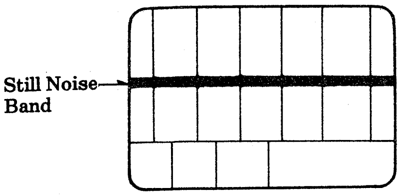
2. Video Head Height Adjustment

Normally the head height of new or existing heads does not need to be adjusted.
There is an easy way to see if a problem exists. Playback the recorded reference tape (VFM2181D), at the color bar section.
Place the unit in the pause mode.
Then adjust the still lever until the noise band is visible in the picture.
If the video heads have the wrong relative height, 2 distinct noise-bands will appear.



Need Adjustment
(Each head height is not equal)
Fig. 24



Good
(Each head height is equal)
Fig. 25

If there is a height problem, adjust as follows:

1) Place the unit in the stop mode.
2) After the heads come to a stop, adjust the height of just one head by turning the height hex screw clockwise very slightly (1/32 to 1/16 turn).
   Use a 1.4mm hex wrench (VFK76) for the adjustment.
3) Then again playback the recorded reference tape, go to the pause mode and check to see if the 2 noise bands have merged together.
   The objective is to adjust the head height so that just one noise band is visible.
   If the adjustment is not enough or if it has further separated the bands—stop the unit and adjust the same head height hex screw either clockwise or counterclockwise as necessary until the adjustment is correct.

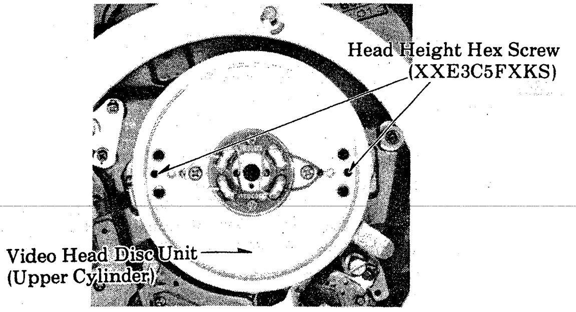


Fig. 26

It is not adviseable to adjust both heads for a change of height.
This procedure would only make for a more critical situation by possibly introducing other errors.
Note: Height Adjustments are critical. Do not turn the height screw more than 1/16 turn at a time.
If the height screw is turned too far in downward (clockwise) direction, head damage might occur.

4. AUDIO/CONTROL HEAD REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure

1. Unscrew the 2 screws (A) and remove the A/C head assembly.
2. Unsolder the lead wires on the A/C head P.C board.
3. Unscrew the 2 screws (B) and remove the A/C head unit from the head plate.
   When removing the head unit, be careful not to lose the pressure spring and the spacer.
4. Unscrew the 3 screw (C) and remove the A/C head from the head base.
5. Unsolder the A/C head from the head P.C board.
6. Install the new A/C head by reversing the above steps.

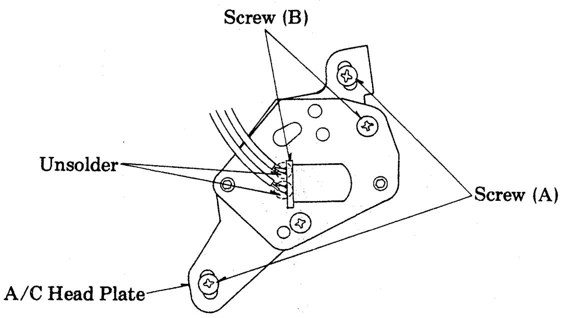


Fig. 27

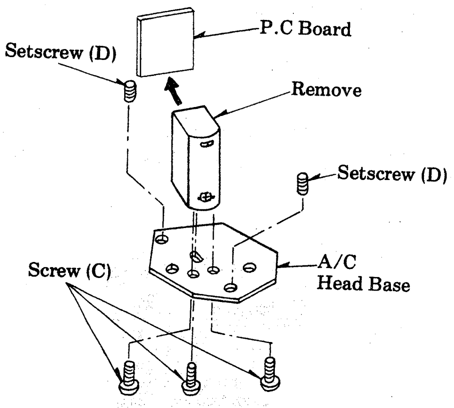


Fig. 28

B. Adjustment Procedure

The height and tilt adjustment procedures of the A/C head are described in "TAPE INTERCHANGEABILITY ADJUSTMENT" section. (See page 3-2).
The A/C head azimuth adjustment procedure is described in the electrical audio adjustment section (See page 5-5).

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5. ERASE HEAD REPLACEMENT/ADJUSTMENT

1. Unsolder the lead wires from the rear of the erase head.
2. Unscrew the 3 screws (A) and remove the head.
   When removing the head, be careful not to lose the pressure springs.
3. Install the new erase head and re-solder the wires.
4. Adjust the "TILT" by the screws (A) so that the tape touches the head face uniformly.
5. Adjust the height of the erase head by adjusting the screws (A) so that the position relationship between the lower edge of the tape and the erase head is as shown in Fig. 30.
6. Check to see that the tape runs correctly past the erase head.
   If not, re-adjust the position of the head. See details in "TAPE INTERCHANGEABILITY ADJUSTMENT" section (See page 3-2).

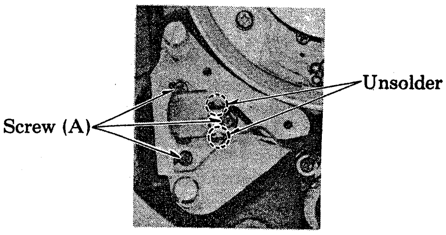
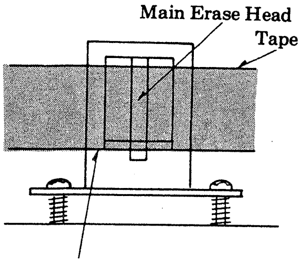

Unsolder
Screw (A)

Fig. 29


Main Erase Head
Tape

Adjust this head height so that the edge of the tape just covers the audio CH-1 erase head as shown.

Fig. 30

6. ELEVATOR UP SWITCH (S6312) AND DOWN SWITCH (S6311) REPLACEMENT/ADJUSTMENT

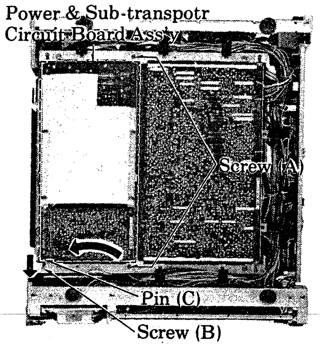

Power & Sub-transpotr Circuit Board Assy
Screw (A)
Pin (C)
Screw (B)

Fig. 31

A. Replacement Procedure

1. Set the unit vertically so that the left side is on the bench.
2. Set the cassette compartment to the "DOWN" position and turn the power OFF.
3. Remove the bottom plate.
4. Unscrew the 2 screws (A) which secure the POWER & SUB-TRANSPORT CIRCUIT BOARD to the frame.
5. Loosen screw (B) a few turns only and remove the board stopper pins (C) to the left.
6. Remove the stopper.
7. Unscrew the 2 screws (E) and remove the switch assembly.
8. Remove the defective switch and install the new switch.

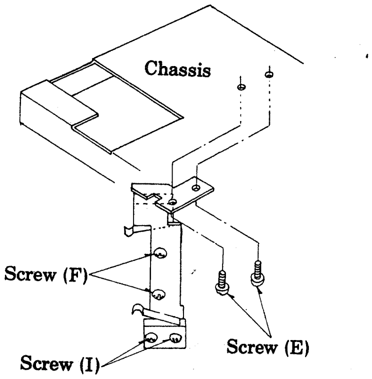
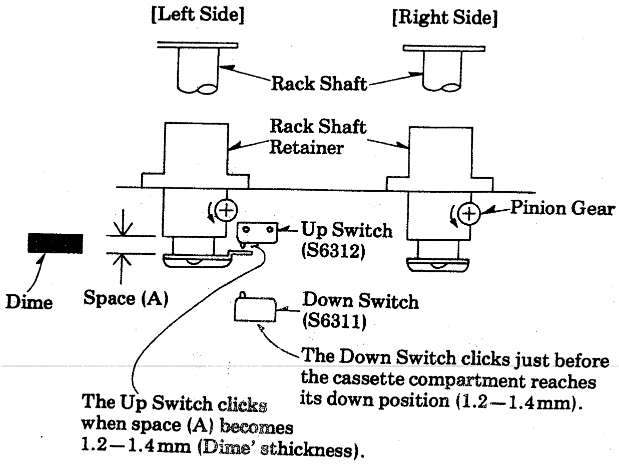

Chassis
Screw (F)
Screw (E)
Screw (I)

Fig. 32

B. Adjustment Procedure

1. **Up Switch (S6312) Position Adjustment**
   This switch stops the elevator motor just before the cassette compartment reaches its top position.
   a) Raise the cassette compartment by pressing the eject button.
   b) Rotate the elevator motor pulley counter-clockwise by hand to lower the cassette compartment.
      Keep rotating until the Space A, as shown, becomes 1.2–1.4mm.
      Measure this space by using a dime. (Dime's thickness is 1.2mm).


[Left Side]
[Right Side]
Rack Shaft
Rack Shaft Retainer
Pinion Gear
Up Switch (S6312)
Dime
Space (A)
Down Switch (S6311)

The Down Switch clicks just before the cassette compartment reaches its down position (1.2–1.4mm).

The Up Switch clicks when space (A) becomes 1.2–1.4mm (Dime' sthickness).

Fig. 33

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c) Loosen screws (F), move the switch assembly up or down so that the up switch just actives (clicks). The purpose of making this space (1.2—1.4mm) is to turn off the elevator motor just before the pinion gear physically stops.

2. **Down Switch (S6311) Position Adjustment**

This switch stops the elevator motor just before the cassette compartment reaches its down position. This procedure is similar to the Up Switch position adjustment.

a) Lower the empty cassette compartment by pressing the FWD button, then press stops.
b) Raise the cassette compartment 1.2—1.4mm by rotating the elevator motor pulley clockwise by hand.
c) Loosen screws (I), move the switch up or down so that the DOWN Switch just activates (clicks).

7. ELEVATOR MOTOR REPLACEMENT

Perform the same steps (1) to (5) of the Elevator Switch Replacement Procedure found in page 3-6.

1. Remove the drive belt from the elevator motor pulley.
2. Remove the connector from the relay board.
3. Unscrew the 2 screws (A) and remove the elevator motor assembly.
4. Unscrew the setscrew (B) and remove the elevator motor pulley.
5. Unscrew the 3 screws (C) and remove the motor from the mounting bracket.
6. Unsolder and remove the relay board from the motor.
7. Install the new motor by reversing the above steps.

Note: When soldering the motor to the board, be sure to observe the proper polarity by matching the positive (+) sides and negative (−) sides.

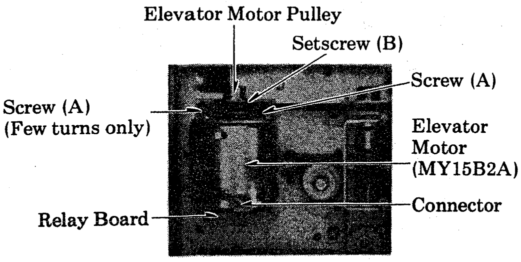
Elevator Motor Pulley
Setscrew (B)
Screw (A)
Screw (A)
(Few turns only)
Elevator
Motor
(MY15B2A)
Relay Board
Connector

Fig. 34

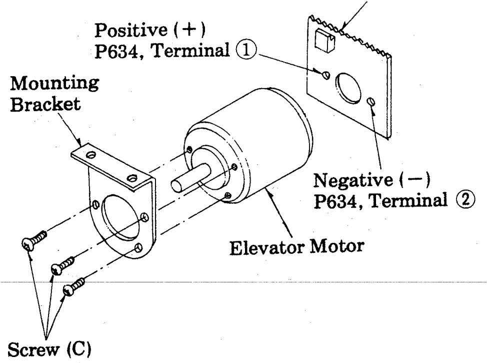
Relay Board
Positive (+)
P634, Terminal ①
Mounting
Bracket
Negative (−)
P634, Terminal ②
Elevator Motor
Screw (C)

Fig. 35

8. LOADING MOTOR REPLACEMENT

1. Remove the top panel and the bottom plate. (Refer to section "DISASSEMBLY METHOD", page 2-1).
2. Set the unit vertically so that the left side is on the bench.
3. Unscrew the 2 screws (A) which secure the TRANSPORT CIRCUIT BOARD to the frame. And then, open the circuit board downward.
4. Remove the control belt (Shiny side...Out side).
5. Unsolder the lead wires from the loading motor terminals. (Yellow...Positive, Light Blue...Negative).
6. Unscrew the 3 screws (B) and remove the loading motor assembly.
7. Remove the loading belt (B) from the loading motor pulley and the intermediate roller.
8. Unscrew the 3 screws (C) and remove the loading motor unit.
9. Unscrew the setscrew (D) and remove the loading motor pulley from the motor. (Use a hex wrench, VFK77).

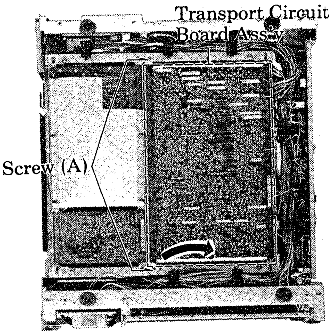
Transport Circuit
Board Assy
Screw (A)

Fig. 36

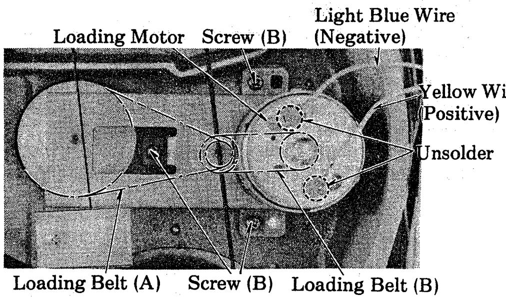
Loading Motor
Screw (B)
Light Blue Wire
(Negative)
Yellow Wire
(Positive)
Unsolder
Loading Belt (A)
Screw (B)
Loading Belt (B)

Fig. 37

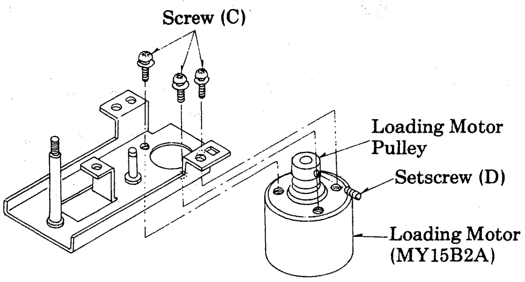
Screw (C)
Loading Motor
Pulley
Setscrew (D)
Loading Motor
(MY15B2A)

Fig. 38

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10. Install the new motor by reversing the above steps (5) to (9).
11. After replacement and complete assembly, place the loading motor assembly on the chassis and thread the 3 screws (B) slightly.
12. Do not forget to match the intermediate gear and the loading gear (face side of the unit).
13. Tighten the screws (B) fully.

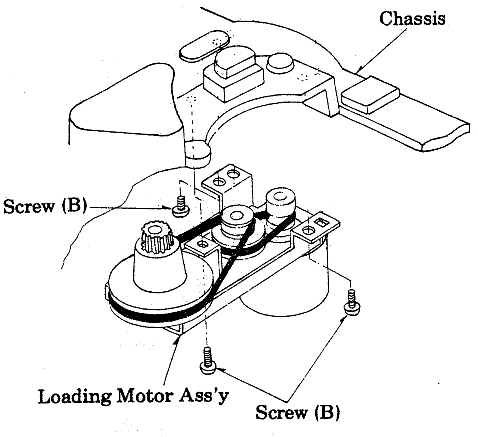
Chassis
Screw (B)
Loading Motor Ass'y
Screw (B)

Fig. 39

9. ECCENTRIC IDLER REPLACEMENT

1. Loosen the 2 setscrews (A) and remove the flywheel. (Use a hex wrench, VFK77).
   If it is too hard to remove by hand, remove it by using the pulley remover (VFK0086).
2. Remove the snap ring and remove the leaf spring and the eccentric idler.
3. Install the new eccentric idler by reversing the above steps.
4. Wipe and clean the surface of the capstan shaft whcih contacts the eccentric idler with alcohol or freon liquid.

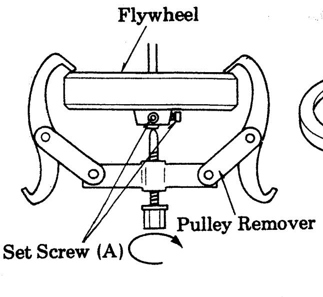
Flywheel
Pulley Remover
Set Screw (A)

Fig. 40

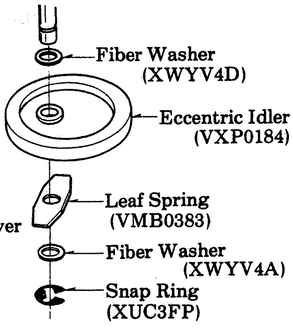
Fiber Washer
(XWYV4D)
Eccentric Idler
(VXP0184)
Leaf Spring
(VMB0383)
Fiber Washer
(XWYV4A)
Snap Ring
(XUC3FP)

Fig. 41

10. AC MOTOR REPLACEMENT

1. Remove all panel and boards.
2. Unsolder the lead wires (orange, black) from the motor starting capacitor and the white wire from the main motor relay.
3. Separate these wires from the wire clamps.
4. Remove the servo belt, the control belt and the rewind belt from the motor pulley.
5. Unscrew the 3 screws (A) and remove the motor assembly.
6. Remove the snap ring (B) and remove the fan (H).
7. Loosen the setscrew (C) of the motor pulley 3 or 4 turns enough and remove the motor pulley.
8. Remove the snap ring (D) and then, remove the spring and the fan (I).
9. Remove the snap ring (E).
10. Unscrew the 4 screws (F) and remove the motor from the motor base.
11. Unscrew the screw (G) and remove the motor shield cover from the motor.
12. Install the new AC Motor by reversing the above steps (8) to (11).
13. Install the motor pulley (upper & lower) on the motor shaft so that the tolerance between the motor shaft and the surface of the motor pulley upper is 3.7mm. (See page 3-22).
14. Install the fans and all belts.

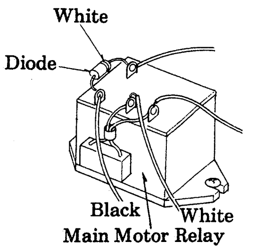
White
Diode
Black
White
Main Motor Relay

Fig. 42

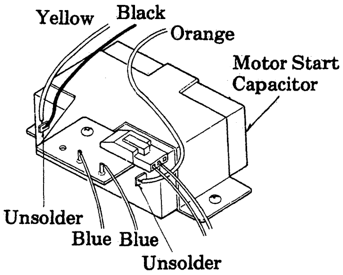
Yellow
Black
Orange
Motor Start
Capacitor
Unsolder
Blue
Blue
Unsolder

Fig. 43

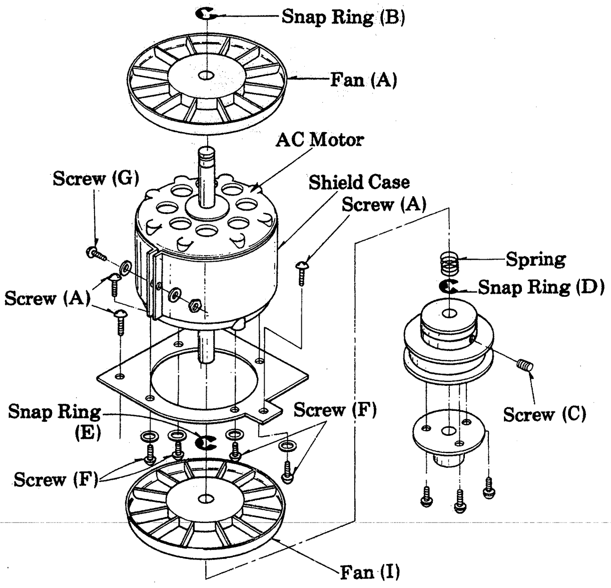
Snap Ring (B)
Fan (A)
AC Motor
Screw (G)
Shield Case
Screw (A)
Screw (A)
Spring
Snap Ring (D)
Screw (C)
Snap Ring
(E)
Screw (F)
Screw (F)
Fan (I)

Fig. 44

11. PRESSURE ROLLER REPLACEMENT/ADJUSTMENT

A. Replacement Procedure

1. Unscrew the 2 screws (A) and remove the pressure roller assembly.
   Then, take care not to lose the spacers (B).
2. Unscrew the 2 screws (C) and remove the pressure roller unit.
3. Before assembly, wipe and clean the pressure roller shaft and the new pressure roller. (New pressure rollers all have bearings.)
4. Install a new pressure roller on the pressure roller shaft, and a spacer (D) on both sides of the pressure roller.
5. Hold both sides of the pressure roller so that the shaft and spacers do not fall down, and install it to the pressure roller arm, and tighten screw (C).
6. Install the pressure roller assembly to the pressure roller angle and tighten it by screws (A).

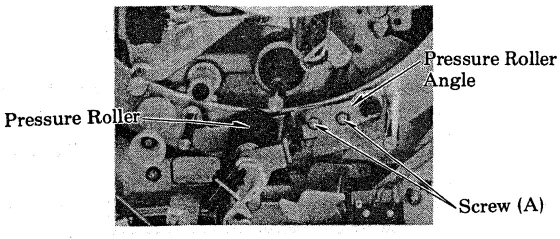
Pressure Roller Angle
Pressure Roller
Screw (A)

Fig. 45

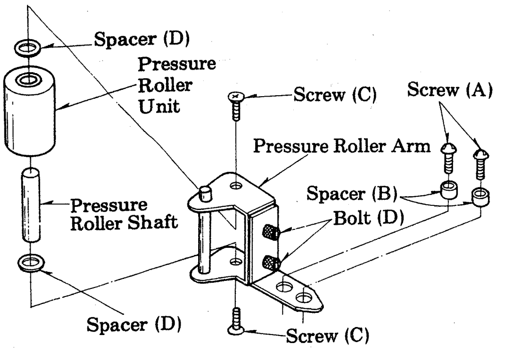
Spacer (D)
Pressure Roller Unit
Screw (C)
Screw (A)
Pressure Roller Arm
Spacer (B)
Bolt (D)
Pressure Roller Shaft
Spacer (D)
Screw (C)

Fig. 46

B. Adjustment Procedure

1. **Pressure Roller Parallelism Adjustment**
   1) Remove the cassette compartment.
   2) Close the cassette position switches with adhesive tape.
   3) Turn the unit ON and press the FWD button.
   4) Then, after the false loading (no tape is used but the loading ring has rotated to the FWD mode), the unit will disengage from the FWD mode, but will not unload.
   5) Press the Pressure Arm towards the capstan until the pressure roller just contacts the capstan shaft and starts to turn.
   6) At this point, there should be a gap between the capstan shaft and the upper portion of the pressure roller of about 0.1mm.
   7) If this gap is not proper—loosen the adjusting bolts (D) and adjust for the proper gap. (Use hex wrench VFK48)
   8) To confirm the parallelism, hold the magnet away from the safety switch to arrow the unit to unload and stop. Then place a cassette tape on the compartment base and start playback.
      Check to see that there is no waving or wrinkling of the tape in the area before and after it passes through the pressure roller and capstan.
      If wrinkling is apparent, re-adjust the pressure roller parallelism.

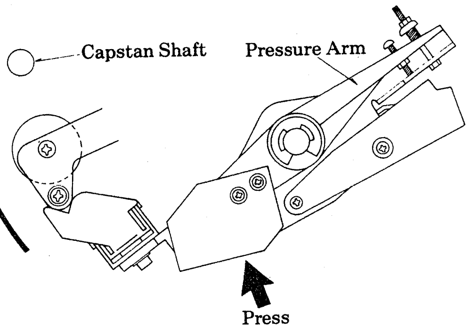
Capstan Shaft
Pressure Arm
Press

Fig. 47

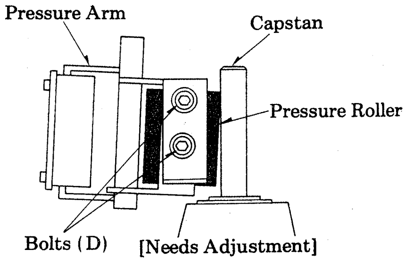
Pressure Arm
Capstan
Pressure Roller
Bolts (D)
[Needs Adjustment]

Fig. 48

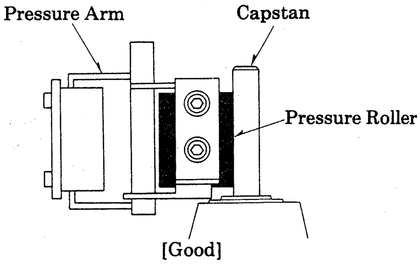
Pressure Arm
Capstan
Pressure Roller
[Good]

Fig. 49

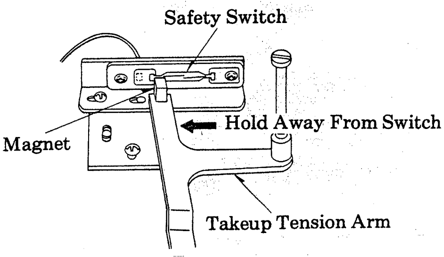
Safety Switch
Hold Away From Switch
Magnet
Takeup Tension Arm

Fig. 50

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2. **Pressure Roller Force Adjustment**

This adjustment may by necessary if the pressure roller fails to keep the tape moving past the capstan shaft.

1) Remove the top panel, cassette compartment, and the right front control panel.
2) Turn the power ON.
3) Place a cassette tape on the cassette compartment base and press FWD button.
4) During the FWD mode, hook the Spring Gauge (3kg range-VFK38) onto the end of the pressure arm and pull just until the tape movement stops and shown.
   The reading on the gauge should be 2.4—2.8kg.
5) If adjustment is necessary—adjust the Pressure Adjusting Nut until the proper pressure is reached.
6. After adjustment, turn the Gap Adjusting Screw (A) and Nut (B) so that the gap (t) is 0.3mm to 0.7mm in the FWD mode.

Note: The thickness of the cover from an ordinary pack of book matches is about 0.3mm.

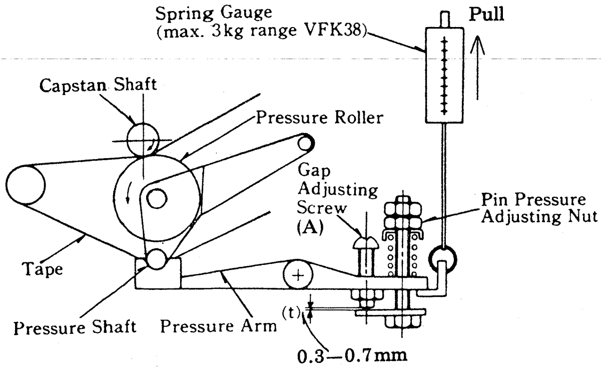
Spring Gauge
(max. 3kg range VFK38)
Pull
Capstan Shaft
Pressure Roller
Gap
Adjusting
Screw
(A)
Pin Pressure
Adjusting Nut
Tape
Pressure Shaft
Pressure Arm
(t)
0.3—0.7mm

Fig. 51

12. SUPPLY REEL TABLE ASSEMBLY REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure

1. Remove the cassette compartment and the cassette compartment base.
2. Unscrew the screw on the supply reel table assembly and remove the Supply Reel Table assembly.
   When removing the reel table, check whether the washer adheres to the bottom of the reel table or not.
   If the washer adheres, return it into the reel shaft.
3. Replace the Supply Reel table assembly. When installing a new supply reel table assembly, release the brake shoe by pressing the plunger of the brake solenoid so that the brake shoe is free from the Supply Reel table.
   Be careful not to break the fixed tension brake unit.

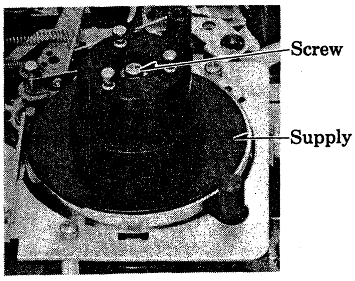
Screw
Supply Reel Table Ass'y

Fig. 52

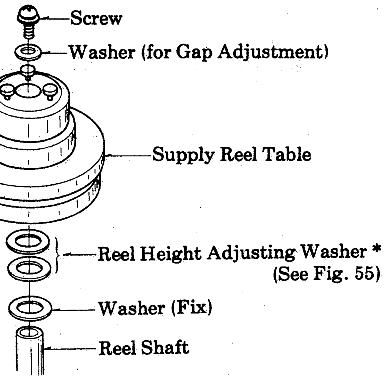
Screw
Washer (for Gap Adjustment)
Supply Reel Table
Reel Height Adjusting Washer *
(See Fig. 55)
Washer (Fix)
Reel Shaft

Fig. 53

B. Adjustment Procedure

1. **Supply Reel Height Adjustment**
   1) Set the height Measurement tool (VFK54) as shown in Fig. 54.
   2) Measure the height of the Supply Reel table Assembly. Adjust the height by adding or taking off polyslider washers (thickness: 0.13, 0.25, 0.5mm) under the reel table assembly. However, always be sure to use at least 0.13mm polyslider washer.
      The adjustment is correct when the table height is such that the height measurement tool just slides over the reel, making contact with the top of the reel table. If it is impossible to adjust by using polyslider washers, insert the mylar washer (0.05mm) under the polyslider washer, and adjust again.
   3) Insert a polyslider washer into the upper part of the reel table so that the vertical clearance is 0.15mm to 0.3mm.
      After adjustment, grease up the reel shaft with morlyton grease (VFK52).
   4) Mount the cassette compartment base and the cassette compartment to the original positions.

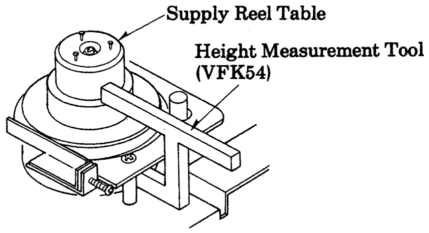
Supply Reel Table
Height Measurement Tool
(VFK54)

Fig. 54

* **Reel Height Adjusting Washer**

Thickness	Part No.
0.13mm	XWXV6Z
0.25mm	XWXV6F
0.5mm	XWXV6D

Fig. 55

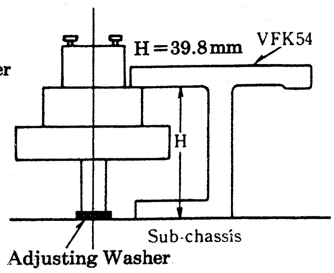
H=39.8mm
VFK54
H
Sub-chassis
Adjusting Washer

Fig. 56

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2. **Back Tension Adjustment**

   When the supply reel table assembly is replaced, the back tension should be checked.
   Refer to "Back Tension Adjustment Procedure" section, page 3-12 for details.

13. SUPPLY MAIN BRAKE SHOE REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure

1. Remove the cassette compartment.
2. Unscrew the 2 screws (A) and remove the cassette compartment base.
3. Unscrew the screws (C) and remove the snap ring (F), and remove the back tension band assembly and the band guide.

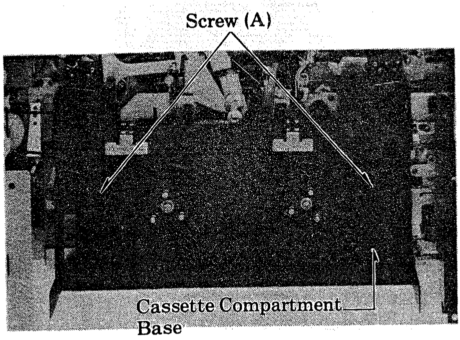
Screw (A)
Cassette Compartment Base

Fig. 57

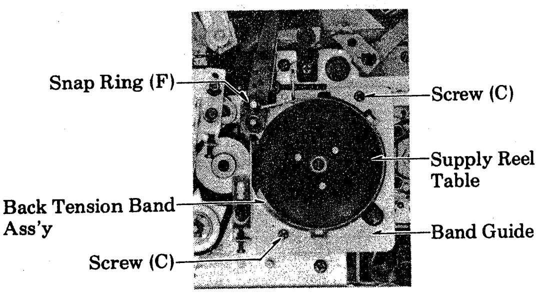
Snap Ring (F)
Screw (C)
Supply Reel Table
Back Tension Band Ass'y
Band Guide
Screw (C)

Fig. 58

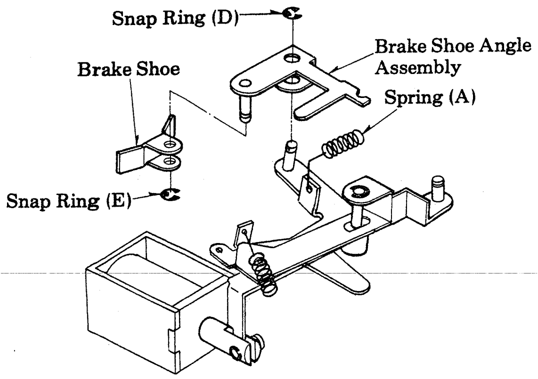
Snap Ring (D)
Brake Shoe Angle Assembly
Brake Shoe
Spring (A)
Snap Ring (E)

Fig. 59

4. Remove one side of spring (A), snap ring (D) and remove the brake shoe angle assembly. And then, remove the snap ring (E) and remove the brake shoe unit, and replace it with a new one.
   Then re-assemble the whole brake assembly.

B. Brake Force Adjustment Procedure

As shown in the drawing the brake mechanisms of the Supply Reel Table are comprised the main brake, and the fixed tension brake, whereas for the takeup reel table, the play belt served as the only brake.

1. Remove the cassette compartment base.
2. Set the 90mm diameter reel of tape on the Supply Reel Table or the takeup reel table, and connect the tension gauge (VFK39 or VFK63) to the end of the tape.
3. Pull the tape in the indicated directions at a speed of about 10cm/sec. and read the values.
4. If the brake force is not proper, adjust it as follows.
   a) Supply reel side
      Adjust the adjusting plate position by loosening screw (a) so that the clearance between the adjusting plate and the brake drive lever is 1.0mm to 2.0mm as shown.
      (Note: The thickness of a penny is about 1.5mm)
      If the value are still proper, replace the brake shoe.
   b) Takeup reel side
      Wipe and clean the play belt and the takeup reel table.
      If the value are still proper, replace the play belt or the takeup reel table.

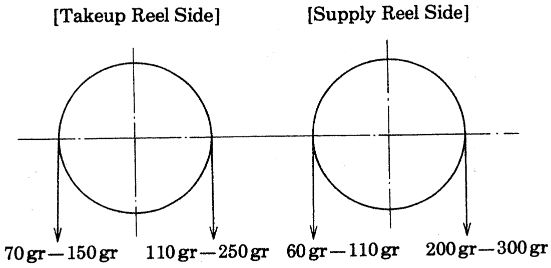
[Takeup Reel Side]
[Supply Reel Side]
70gr—150gr
110gr—250gr
60gr—110gr
200gr—300gr

Fig. 60

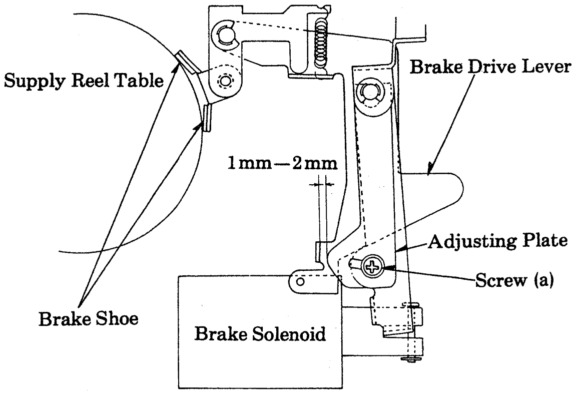
Supply Reel Table
Brake Drive Lever
1mm—2mm
Adjusting Plate
Screw (a)
Brake Shoe
Brake Solenoid

Fig. 61

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14. FIXED TENSION ASSEMBLY REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure

1. Remove the cassette compartment and the cassette compartment base.
2. Unscrew the screws (A) and remove the fixed tension assembly.
3. Replace the fixed tension assembly with a new one.

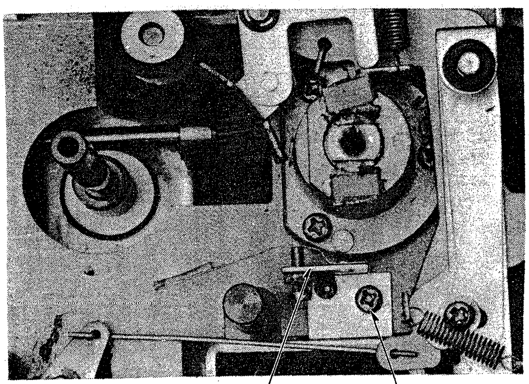

Fixed Tension Assy
Screw (A)

Fig. 62

B. Adjustment Procedure

1. Put the 40mm diameter reel of tape on the Supply Reel table and connect the tension gauge (100gr/VFK62) to the end the the tape.
2. Measure the tension force by pulling the tape at a speed of 10cm/sec (4 inches/sec).
   The reading must be 25gr to 35gr.
   (Caution: For this measurement, the main brake must be locked out completely and the back tension band must be removed.)
3. If the force is not within specification, adjust by tightening or loosening the adjusting screw.
   Fix the adjusting screw by the lock nut after adjustment.
4. Mount the band guide, the back tension band assembly, the cassette compartment base and the cassette compartment to the original positions.

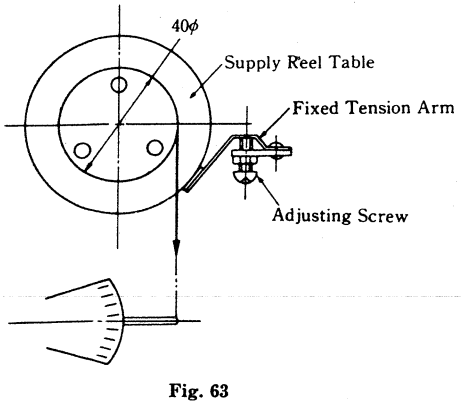

40ϕ
Supply Reel Table
Fixed Tension Arm
Adjusting Screw

Fig. 63

15. BACK TENSION BAND ASSEMBLY REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure

1. Remove the cassette compartment and the cassette compartment base.
2. Remove the snap ring.
3. Unscrew the screw (B) and remove the back tension band assembly.
   Do not loosen the tension adjusting screw.
4. Install the new tension band.

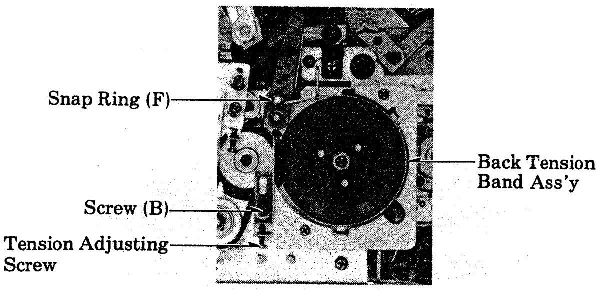
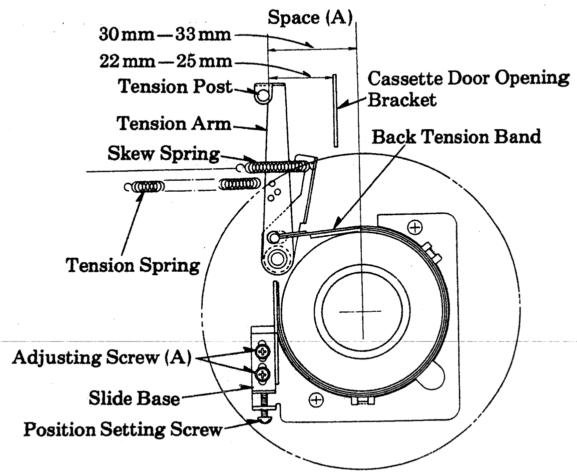

Snap Ring (F)
Back Tension Band Ass'y
Screw (B)
Tension Adjusting Screw

Fig. 64

B. Back Tension Adjustment Procedure

1. Remove the top panel, the cassette compartment, and the cassette compartment base.
2. Close the cassette position switches by using adhesive tape.
3. Turn the power ON, and place the unit in the FWD mode.
4. After completion of the false loading, the unit will disengage from FWD, but it will not unload (because of the safety switch).
5. Measure the space (A) between the tension post and the reel center.
   This value should be 30mm to 33mm.
   If measured from the tension post to the cassette door opening bracket, the distance should be 22mm to 25mm.
   (Note: The diameter of a quarter is about 24mm.)
6. If the space is not proper, adjust the position of the tension band by loosening the Adjusting Screws (A) and moving the slide base forward or backward.
7. Hold the magnet away from the safety switch with adhesive tape and let the unit unload and stop.


Space (A)
30mm—33mm
22mm—25mm
Tension Post
Cassette Door Opening Bracket
Tension Arm
Back Tension Band
Skew Spring
Tension Spring
Adjusting Screw (A)
Slide Base
Position Setting Screw

Back Tension Adjustment

Fig. 65

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8. Now press FWD and let the unit falsely load and it will not disengage from the FWD mode.
9. Put the 118mm diameter reel of tape on the Supply Reel Table and connect the tension gauge (VFK62) to the end of the tape.
10. Pull the tape out in a direction tangent to the head cylinder at a constant speed of 10cm/sec. Be sure that the skew control is in its center position.
The tension reading should be 70±2 grams.
11. If the reading is not proper, adjust it by changing the position of the skew spring.

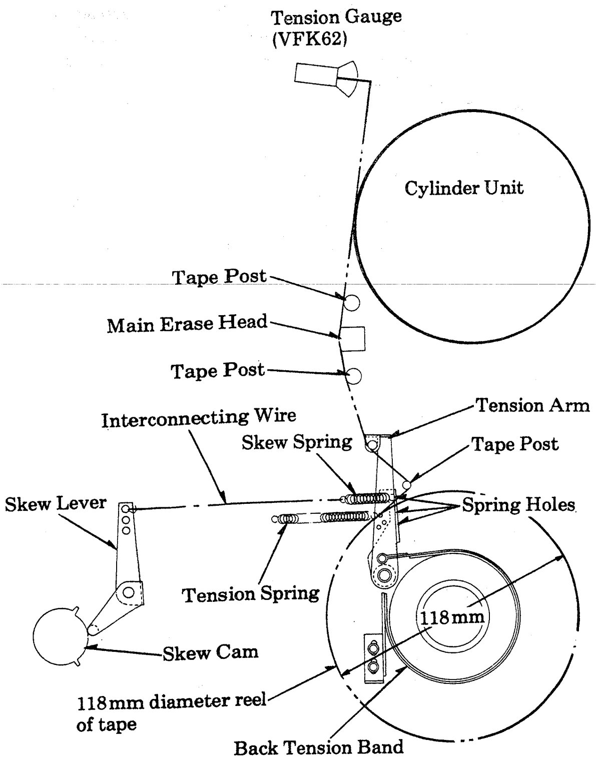
Tension Gauge
(VFK62)
Cylinder Unit
Tape Post
Main Erase Head
Tape Post
Interconnecting Wire
Tension Arm
Skew Spring
Tape Post
Skew Lever
Spring Holes
Tension Spring
118mm
Skew Cam
118mm diameter reel of tape
Back Tension Band

Fig. 66

16. TAKEUP REEL TABLE ASSEMBLY REPLACEMENT/ ADJUSTMENT

A. Replacement Procedure

1. Remove the cassette compartment and the cassette compartment base.
2. Remove the snap ring (A) securing the tension servo band assembly and remove one side of the tension servo band.
3. Remove the counter belt.
4. Unscrew the screw (A) on the Takeup Reel Table assembly and remove the Takeup Reel Table assembly.
When removing the reel table, check whether the washer adheres to the bottom of the reel table or not.
If the washer adheres, return it into the reel shaft.
5. Replace the Takeup Reel Table assembly. When installing the Takeup Reel Table assembly, push the PLAY Roller to the right so that the reel table does not contact the PLAY Roller (Play Belt).

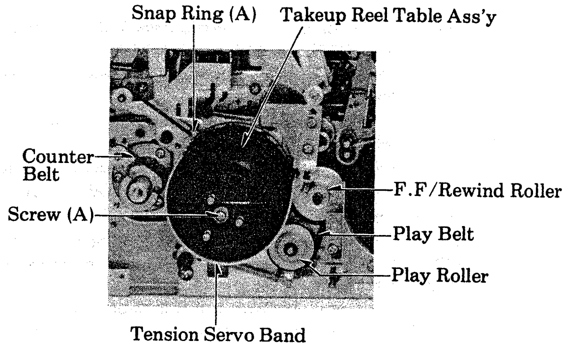
Snap Ring (A)
Takeup Reel Table Ass'y
Counter Belt
Screw (A)
F.F/Rewind Roller
Play Belt
Play Roller
Tension Servo Band

Fig. 67

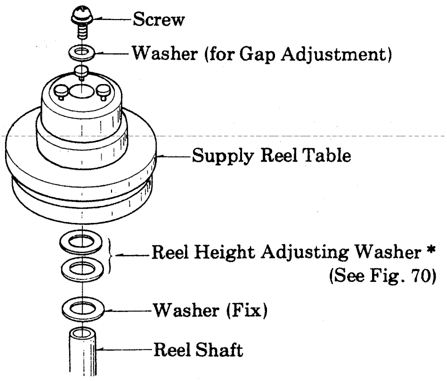
Screw
Washer (for Gap Adjustment)
Supply Reel Table
Reel Height Adjusting Washer *
(See Fig. 70)
Washer (Fix)
Reel Shaft

Fig. 68

B. Adjustment Procedure

1. **Takeup Reel Height Adjustment**
If the takeup reel height is adjusted too low, the bottom edge of the tape touches the cassette case which does not rotate.
This causes damage to the tape.
Therefore adjust the takeup reel height precisely according to following procedure.
   1) After removing the spring from the hook, set the height measurement tool (VFK54) as shown in Fig. 69.

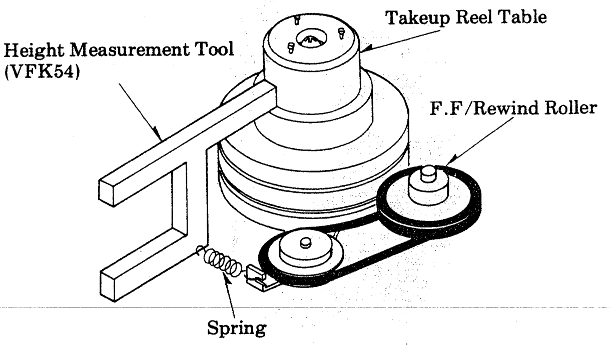
Takeup Reel Table
Height Measurement Tool
(VFK54)
F.F/Rewind Roller
Spring

Fig. 69

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2) Measure the height of the Takeup Reel Table assembly. Adjust the height by adding or taking off polyslider washer (thickness : 0.13, 0.23, 0.5mm) under the reel table assembly.
However, always be sure to use at least 0.13mm polyslider washer.
The adjustment is correct when the table height is such that the height measurement tool just slides over the reel making contact with the top of the reel table.
If it is impossible to adjust by using polyslider washer, insert the mylar washer (0.05mm) under the polyslider washer, and adjust again.
6) Insert a polyslider washer into the upper part of the reel table so that the vertical clearance is 0.15mm to 0.3mm.
After adjustment, grease up the reel shaft with morlyton grease (VFK52).
7) Install the counter belt and the tension servo band assembly.
8) Mount the cassette compartment base and the cassette compartment to the original positions.

* Reel Height Adjusting Washer

Thickness	Part No.
0.13mm	XWXV6Z
0.25mm	XWXV6F
0.5mm	XWXV6D

Fig. 70

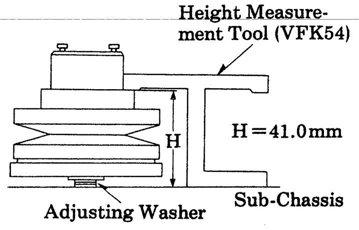
Height Measurement Tool (VFK54)
H
H=41.0mm
Adjusting Washer
Sub-Chassis

Fig. 71

2. **Takeup Tension Adjustment**
When the takeup reel table assembly is replaced, the takeup tension should be checked.
Refer to "Tension Servo Band Adjustment Procedure" section for details.

17. TENSION SERVO BAND ASSEMBLY REPLACEMENT/ ADJUSTMENT

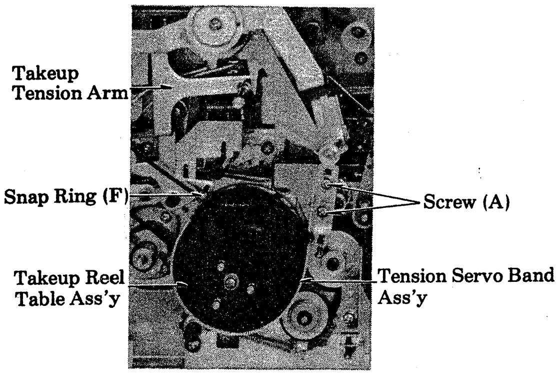
Takeup Tension Arm
Snap Ring (F)
Screw (A)
Takeup Reel Table Ass'y
Tension Servo Band Ass'y

Fig. 72

A. Replacement Procedure

1. Remove the cassette compartment and the cassette compartment base.
2. Remove the snap ring (F).
3. Unscrew the screws (A) and remove the tension servo band assembly.
4. Install the new tension servo band assembly.

B. Tension Servo Band Adjustment Procedure

If this adjustment is incorrect, the takeup tension is the FWD mode may be incorrect which could cause the safety switch to mal-function. This adjustment should be performed if the Servo Band is replaced or if the Takeup Reel is replaced.

1. With the top panel, the cassette compartment and the cassette compartment base removed, turn the power ON.
2. Close the 2 cassette position switches by using adhesive tape.
3. Lower the rack shafts by pressing REW.
4. Open the door of a 60 minutes cassette (National NV-P26) by moving the door latch downward as shown. Place the cassette with door fully open on the reel tables.
(Do this slowly and carefully to avoid tape damage.)

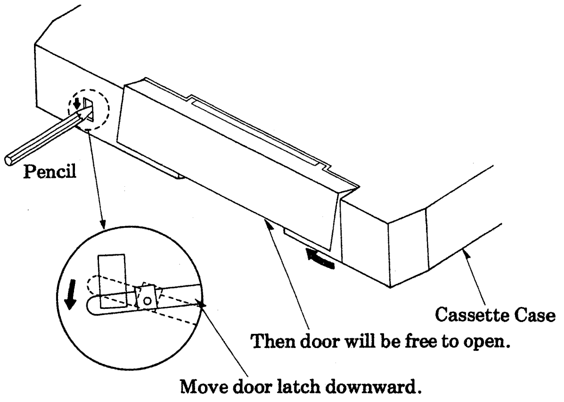
Pencil
Cassette Case
Then door will be free to open.
Move door latch downward.

Fig. 73

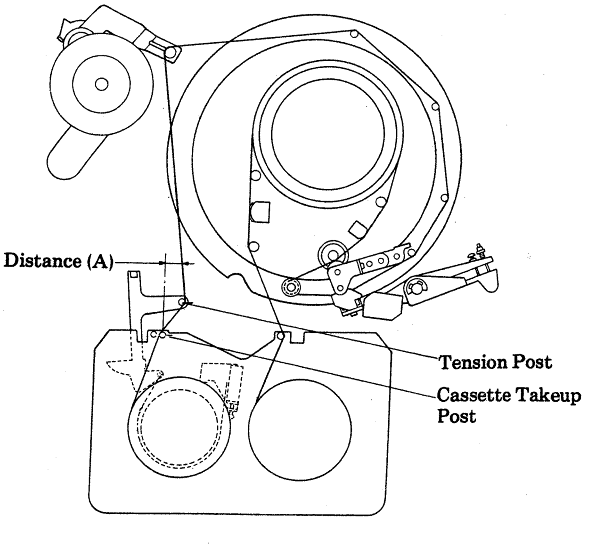
Distance (A)
Tension Post
Cassette Takeup Post

Fig. 74

(25) NW 9210

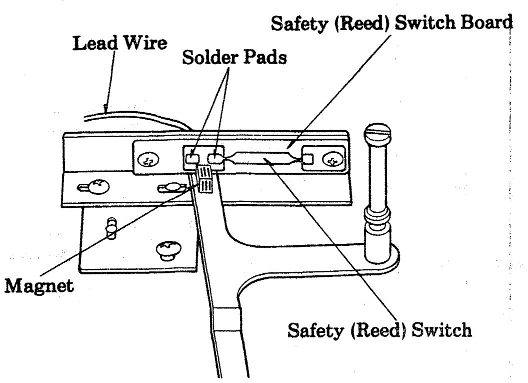
Lead Wire
Safety (Reed) Switch Board
Solder Pads
Magnet
Safety (Reed) Switch

Fig. 75

5. Press FWD and measure the distance (A) between the cassette takeup post and the tension post as shown.
   This distance (A) should be 10—11 mm.
   This correct distance correlates to a relative position between the Safety (Reed) switch and the magnet as shown.
   Notice the magnet is midway between the 2 solder pads to the left of the reed switch.
   This is an easy check.
   If the distance (A) is not correct, or if the magnet is far out of the above position, the Tension Servo Band will need adjustment.
6. To adjust, press STOP, then remove cassette after unloading is completed.
   Loosen setscrews (B) and slide the base either forward or backward a small amount.
   Retighten the sectscrews (B) and again play the tape and check for proper distance (A).
7. Repeat Step (6) until the distance (A) is correct.
8. Check the actual takeup tape tension by using a tension meter at the position shown.
   At the beginning of a 60 min. tape, the tension should be 50—60 grams.
   At the end of the tape, the tension should be more than 15 grams.
   If the tension values are not correct, the Tension Servo Band will have to be re-adjusted (or replaced).

18. CASSETTE POSITION SWITCH REPLACEMENT

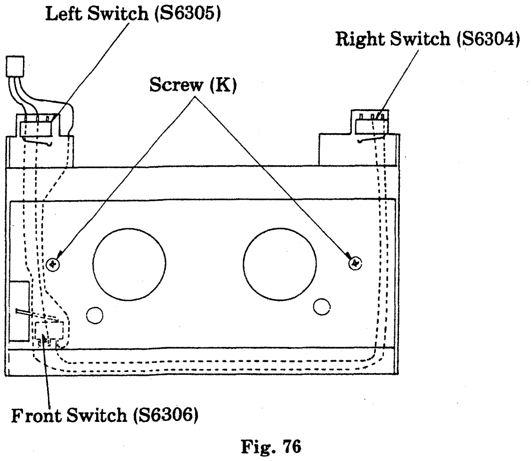
Left Switch (S6305)
Right Switch (S6304)
Screw (K)
Front Switch (S6306)

Fig. 76

1. Remove the top panel and the cassette compartment.
2. When replacing the left switch (S6305) or the right switch (S6304).........
   a) Unsolder the lead wires from each micro switch terminals.
   b) Unscrew the screws securing the micro switch and remove the micro switch.
   c) Install the new micro switch by reversing the above steps. These switches close when the cassette is inserted into the cassette compartment correctly.

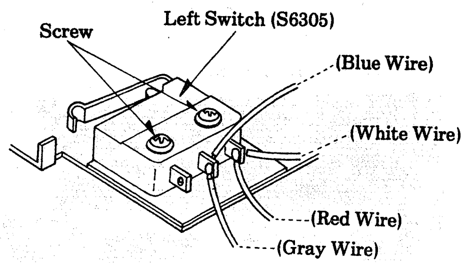
Screw
Left Switch (S6305)
(Blue Wire)
(White Wire)
(Red Wire)
(Gray Wire)

Fig. 77

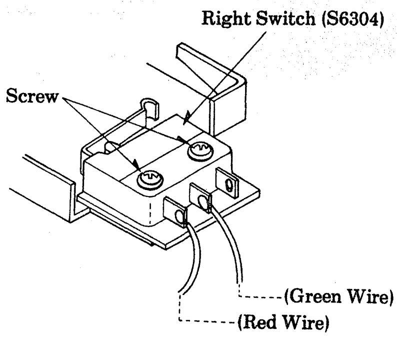
Right Switch (S6304)
Screw
(Green Wire)
(Red Wire)

Fig. 78

3. To replace the front switch (S6306).........
   a) Unscrew the 2 screws (K) and remove the cassette compartment base.
   b) Unsolder the lead wires from the micro switch terminals.
   c) Unscrew the screws securing the micro switch and remove the switch.
   d) Install the new micro switch by reversing the above steps. This switch turns ON or OFF when the actuator moves.

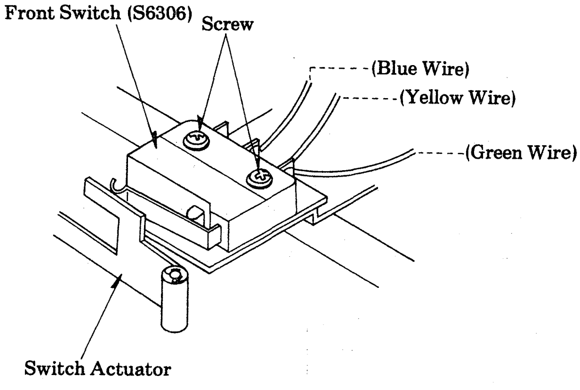
Front Switch (S6306)
Screw
(Blue Wire)
(Yellow Wire)
(Green Wire)
Switch Actuator

Fig. 79

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19. SAFETY SWITCH (Reed Switch) REPLACEMENT

1. Remove the top panel and the cassette compartment.
2. Unsolder the lead wire from the P.C Board of the reed switch.
3. Unscrew the screw (A) and remove the P.C board mounting angle.
4. Unsolder the reed switch (S6303).
5. Solder the new switch so that the flat portion of the switch terminals is parallel with the surface of P.C board as shown.

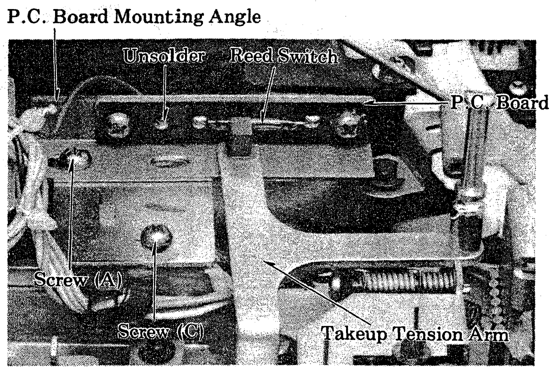
P.C. Board Mounting Angle
Unsolder
Reed Switch
P.C. Board
Screw (A)
Screw (C)
Takeup Tension Arm

Fig. 80

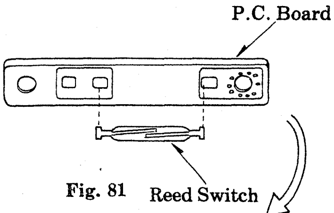
P.C. Board
Reed Switch

Fig. 81

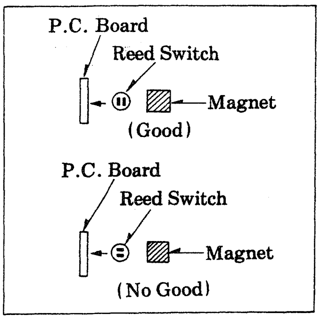
P.C. Board
Reed Switch
Magnet
(Good)
P.C. Board
Reed Switch
Magnet
(No Good)

Fig. 82

6. Mount the P.C board mounting angle to the original position so that the center of the tension magnet meets with the center of the reed switch.
   Then, the clearance (A) between the tension post base and the tension arm pressing piece must be 0.5 mm to 1.5 mm.
7. Make sure that the clearance (B) between the reed switch and the magnet is 0.5 mm to 1.0 mm.
   If it is not, adjust screw (C).
8. Solder the lead wire to the P.C board.
9. To confirm the safety function.........
   a) Insert the cassette tape into the cassette compartment and place the unit in the FWD mode.
   b) Make sure that the unit goes into the "STOP" mode automatically when the tape is made loose. (Move the takeup tension arm to right by hand.)

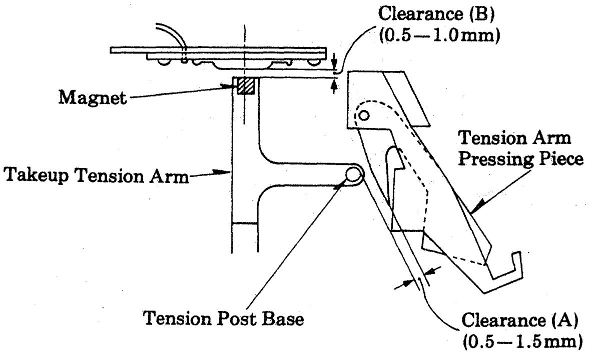
Clearance (B)
(0.5—1.0mm)
Magnet
Tension Arm
Pressing Piece
Takeup Tension Arm
Tension Post Base
Clearance (A)
(0.5—1.5mm)

Fig. 83

20. LOADING RING REPLACEMENT

1. Remove the top panel.
2. Loosen the screws (A) which secure the loading guide roller assembly and turn the assembly to the inside.
3. Loosen the screw (B) which secures the main loading gear ass'y. and turn the ass'y. fully in the direction of the arrows.
4. Turn the levers (A) and (B) in the indicated directions at the same time to release the ring.
5. Carefully lift out the loading ring.

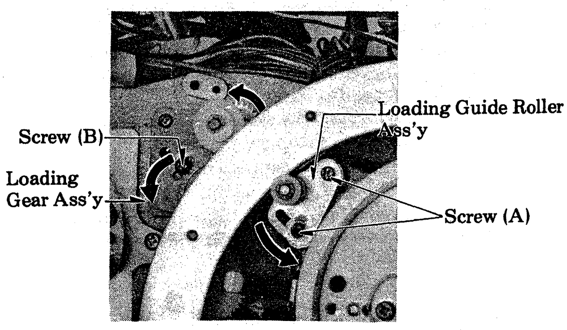
Screw (B)
Loading Gear Ass'y
Loading Guide Roller Ass'y
Screw (A)

Fig. 84

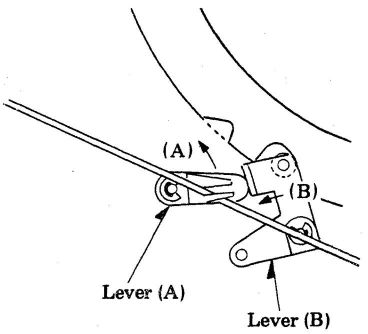
(A)
(B)
Lever (A)
Lever (B)

Fig. 85

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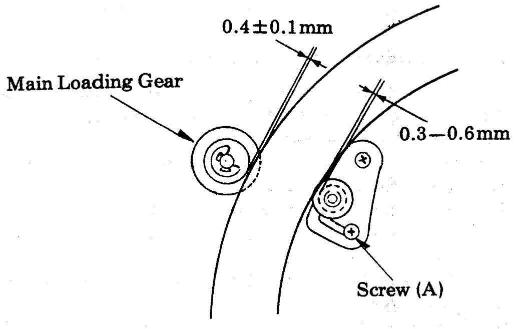
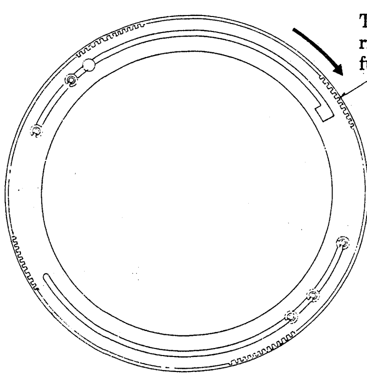

0.4±0.1mm
Main Loading Gear
0.3—0.6mm
Screw (A)

Fig. 86

6. New Loading Ring Assembly.
   a) As can be seen in the diagrams, the loading ring has a gear plate on its underside.
   With the gear plate facing you, turn the gear plate fully clockwise.
   b) To make sure that the loading gears are in the starting position, rotate the main loading gear clockwise by hand until the loading arm starts to come out. Then rotate the main loading gear counterclockwise until the loading arm fully retracts a click is heard. Repeat this portion if you are not sure if it was done properly.
   Stop when you hear the click.
   c) Keeping the gear plate on the loading ring from moving, install the new loading ring.
   d) Position the new ring properly on the guide rollers and engage the main loading gear into the gear plate.
   (Be sure that the gear plate did not move.)
   e) Adjust the position of the main loading gear and the guide roller ass'y. so that the indicated spacing is met.
   (Note: The thickness of the cover of an ordinary pack of book matches is about 0.3mm.)
   Then thighten the screws.
7. Be sure that the new ring operates smoothly.
   If it does not, repeat the replacement procedure.



To install the loading ring, move the gear plate fully clockwise as shown.

Loading Ring Bottom View

Fig. 87

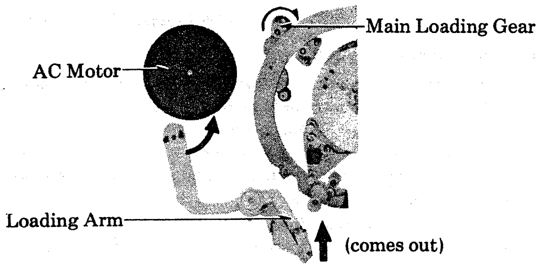

Main Loading Gear
AC Motor
Loading Arm
(comes out)

Fig. 88

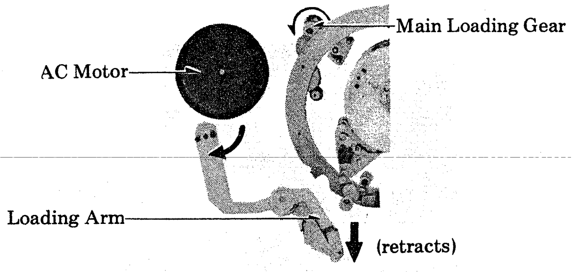

Main Loading Gear
AC Motor
Loading Arm
(retracts)

Fig. 89

21. REC INHIBIT SWITCH (S6302) AND KC/KCA SWITCH (S6321) REPLACEMENT

1. Remove the top panel, the cassette compartment, and the cassette compartment base.
2. Cut the harness clamper and remove the wires from the wire clamper near the REW solenoid.
3. Unscrew the screw (A) and remove the switch assembly. (Move the takeup tension arm to the left side.)
4. Unsolder the lead wires from the micro switch terminals.
5. Unscrew the 2 screws (B) and remove the micro switch.
6. Install the new switch by reversing the above steps.
   When replacing the actuators, it is necessary to remove snap rang (C).
   Note: Do not forget to insert the grounding wire terminal to screw (A).

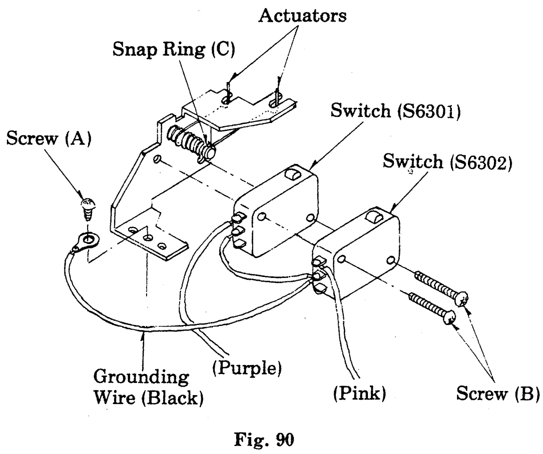

Actuators
Snap Ring (C)
Switch (S6301)
Screw (A)
Switch (S6302)
Grounding Wire (Black)
(Purple)
(Pink)
Screw (B)

Fig. 90

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22. BRAKE SOLENOID REPLACEMENT/ADJUSTMENT

A. Replacement Procedure

1. Remove the cassette compartment and the front panel and the cassette compartment base.
2. Remove the tension band guide.
3. Unscrew the 2 screws (A) and remove the switch assembly.
4. Unsolder the lead wires and diode from the brake solenoid. (Note polarity of diode.)
5. Remove the spring (B).
6. Remove the snap ring and washer, and remove the brake adjusting lever ass'y.
7. Unscrew the 2 screws (C) and remove the brake solenoid assembly.
8. Remove the snap ring and the solenoid pin.
9. Install the new solenoid by reversing the above steps.

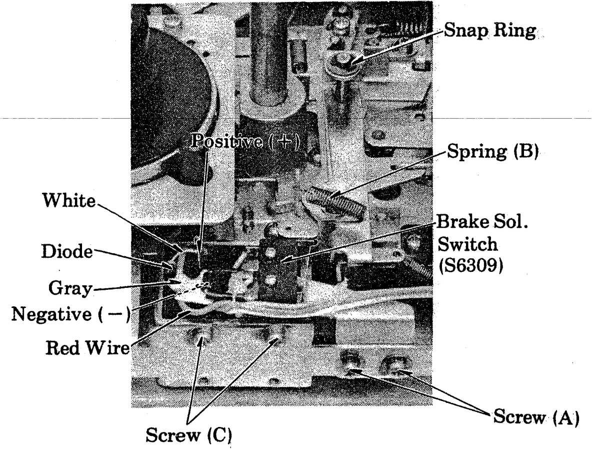
Snap Ring
Positive (+)
Spring (B)
White
Brake Sol. Switch (S6309)
Diode
Gray
Negative (−)
Red Wire
Screw (A)
Screw (C)

Fig. 91

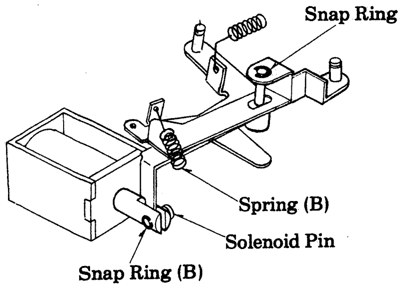
Snap Ring
Spring (B)
Solenoid Pin
Snap Ring (B)

Fig. 92

B. Adjustment Procedure

When the brake release solenoid is replaced, the brake force should be checked.
Refer to "Brake Force Adjustment Procedure" section for details. (See page 3-11).

23. SKEW SOLENOID REPLACEMENT

1. Remove the front control panel (left side) and the cassette compartment and the cassette compartment base.
   And remove the front panel.
2. Unscrew the 3 screws (A) which secure the left side control panel assembly to the frame.
3. Remove the skew connecting rod from the skew lever.
4. Remove the counter belt (large) from the counter intermediate pulley.
5. Unscrew the screw (B) and remove the skew solenoid assembly without plunger.
6. Unscrew the 2 screws (C) securing the skew solenoid and remove the skew solenoid from the bracket.
7. Remove the snap ring from the solenoid pin and remove the solenoid pin and plunger.
   Remove the spring from the plunger.
   Unsolder the lead wires and diode from the terminal of the skew solenoid. (Note polarity of diode.)
8. Install the new solenoid by reversing the above steps.

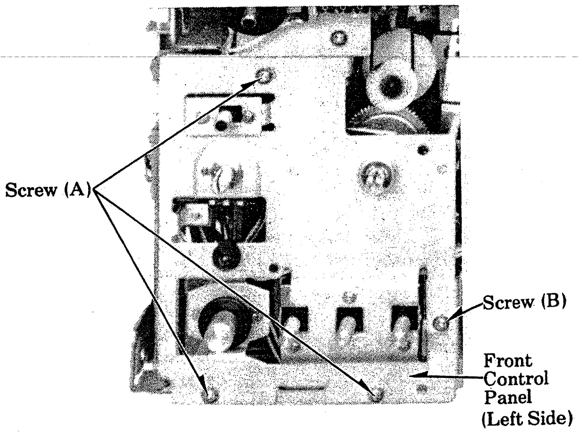
Screw (A)
Screw (B)
Front Control Panel (Left Side)

Fig. 93

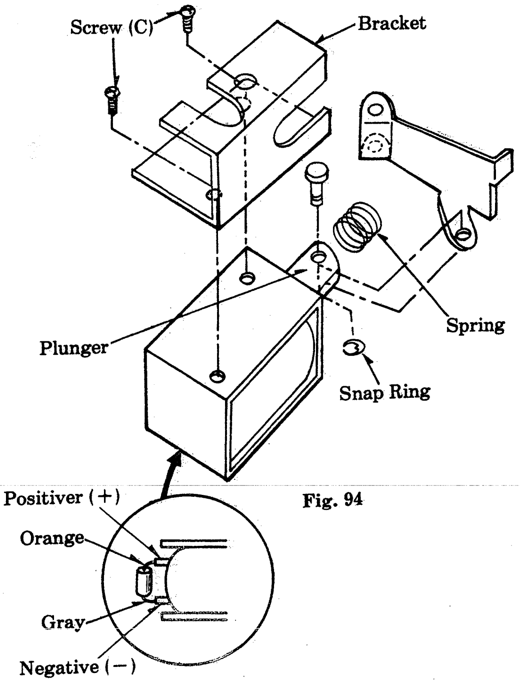
Screw (C)
Bracket
Plunger
Spring
Snap Ring
Positiver (+)
Orange
Gray
Negative (−)

Fig. 94

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24. F.F SOLENOID REPLACEMENT

A. Replacement Procedure

1. Remove the front control panel (right side) and front panel and the rear panel.
2. Remove the tuner unit.
3. Unsolder the lead wires and diode from the terminal of the F.F Solenoid (Note polarity of diode.)
4. Remove the snap rings (B) from the pin.
5. Unscrew the 2 screws (C) securing the solenoid stopper to the solenoid and remove the solenoid stopper.
6. Set the unit vertically so that the rear side is on the bench.
7. Unscrew the 3 screws (D) securing the MIC JACK assembly and remove the MIC JACK assembly. (Do not remove the connectors.)
8. Unscrew the 2 screws (E) and remove the F.F solenoid lever.
9. Remove the snap ring from the solenoid pin and remove the solenoid lever.
10. Install the new solenoid.
    Assemble the other parts in their original positions by reversing the above steps.

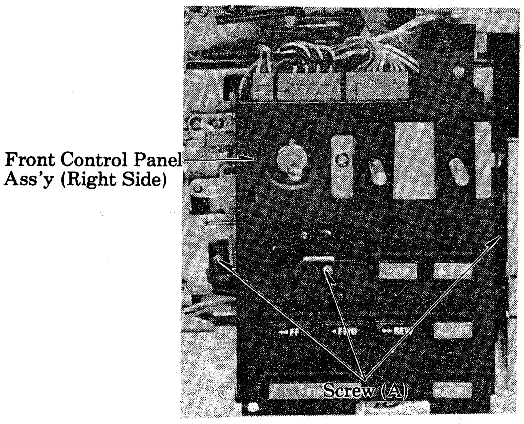

Fig. 95

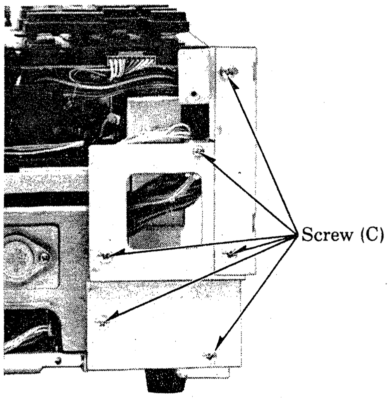

Fig. 96

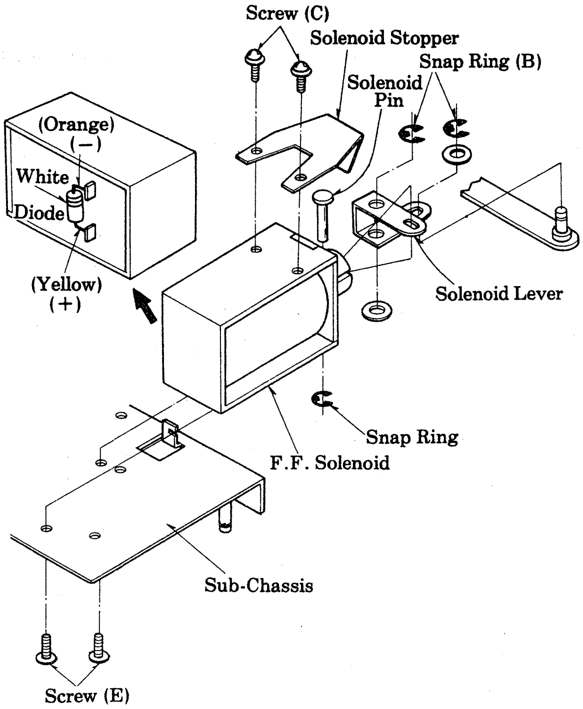

Fig. 97

B. F.F Force Adjustment Procedure

This adjustment may be necessary if the F.F solenoid is replaced or if the unit fails to fast forward or if the fast forward action is extremely slow or uneven.

1. With the cassette compartment and base removed, close the cassette position micro switches by using adhesive tape.
2. Place the unit in the F.F mode.
3. Hold the top of the Takeup Reel and stop it. Make sure that the counter is still moving.
   (Takeup Reel clutch is slipping.)
   If this happens, no adjustment is necessary—proceed to Step 5.
   If the counter does not move, perform the succeeding steps.
4. While in the F.F mode, adjust the angle of F.F. lever (3) by loosening screw (A) as shown so that the counter just starts to move while the Takeup Reel is being held still. At this position, fasten screw (A).
   Go between the STOP and F.F modes several times to verify this.
5. Verify the F.F force by placing the 90mm diameter reel on the Takeup Reel Table and connect the tension gauge to the end of the tape.
6. Place the unit in the F.F mode and measure the F.F force. Make sure that the force is more than 350 grams.
   * When measurement is made by using a torque gauge (VFK70), connect the torque adaptor to the torque gauge, and place the adaptor or the reel table.
     Measure the torque and make sure that it is more than 1,600gr-cm.
7. If the F.F force or torque is not as specified, the Takeup Reel may need to be replaced.
8. If the above adjustments are correct, the gap (T) as shown should be more than 0.5mm in the STOP mode.

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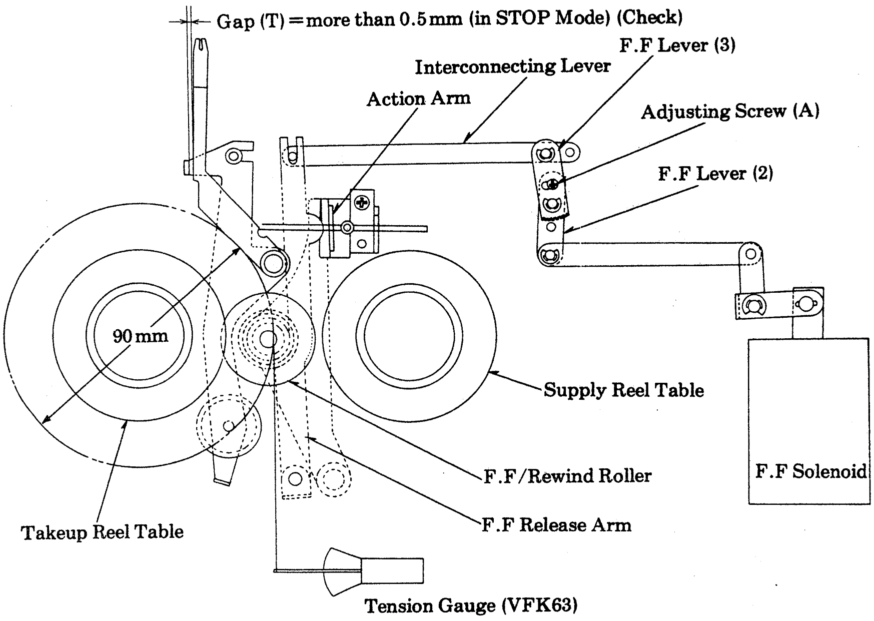
Gap (T) = more than 0.5 mm (in STOP Mode) (Check)
F.F Lever (3)
Interconnecting Lever
Action Arm
Adjusting Screw (A)
F.F Lever (2)
90 mm
Supply Reel Table
F.F/Rewind Roller
F.F Solenoid
F.F Release Arm
Takeup Reel Table
Tension Gauge (VFK63)

Fig. 98

25. PLAY ROLLER SOLENOID REPLACEMENT

1. Remove the front control panel (right side) and the front panel, the rear panel.
2. Remove the tuner unit.
3. Unsolder the lead wires and diode from the terminal of the play roller solenoid.
   (Note polarity of diode.)
4. Remove the snap rings (B).
5. Unscrew the 2 screws (C) securing the play roller solenoid to the sub-chassis, and remove the play roller solenoid assembly.
6. Unscrew the 2 screws (D) securing the solenoid stopper and remove the solenoid stopper.
7. Remove the snap ring from the solenoid pin and remove the solenoid lever.
8. Install the new solenoid and assemble the other parts to the original positions by reversing the above steps.
9. After replacement, check the neutral position.
   Neutral position:
   For proper operation, the clearance between the play belt and the takeup reel table should be more than 0.5 mm.
10. If it is less than 0.5 mm, move the position of the play roller solenoid slightly backward.
    Note: The folded thickness (2 layers) of a cover from an ordinary pack of book matches about 0.6 mm.

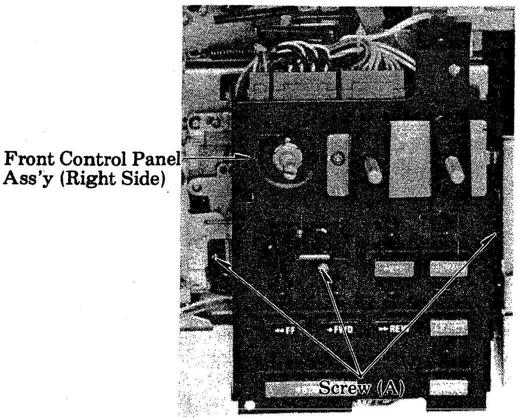
Front Control Panel Ass'y (Right Side)
Screw (A)

Fig. 99

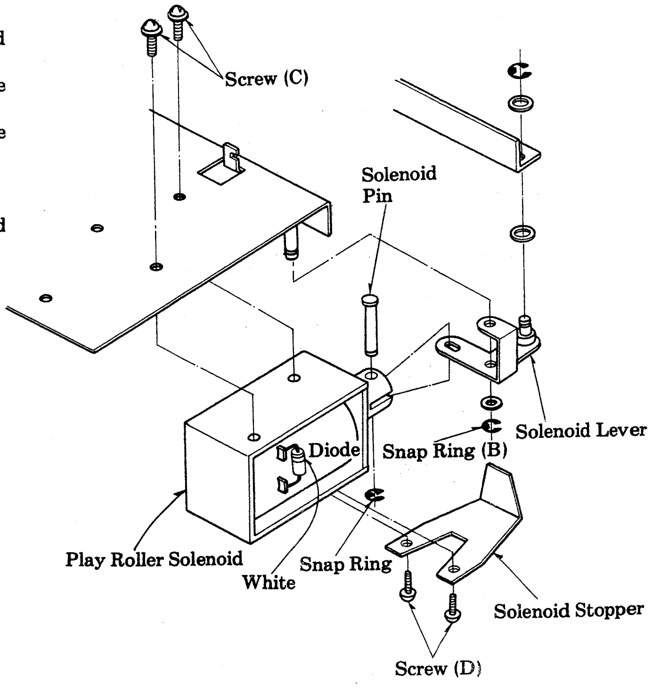
Screw (C)
Solenoid Pin
Solenoid Lever
Diode
Snap Ring (B)
Play Roller Solenoid
White
Snap Ring
Solenoid Stopper
Screw (D)

Fig. 100

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26. REWIND SOLENOID REPLACEMENT/ADJUSTMENT

A. Rewind Solenoid Replacement

1. Remove the front panel, the left control panel, the cassette compartment and the cassette compartment base.
2. Move the loading arm til the near the motor by rotating the main loading gear counterclockwise manually.
3. Remove the P.C board securing on the REW solenoid and the safety switch mounting plate (with the reed switch and P.C board).
4. Remove the takeup tension arm and the solenoid lever with plunger and the connecting rod.
5. Unscrew the screw (A) securing the reinforcing angle to the chassis.
6. Unscrew the 2 screws (B), and then REW solenoid can be removed.
7. Install the new solenoid and assemble the other parts to the original position by reversing the above steps.

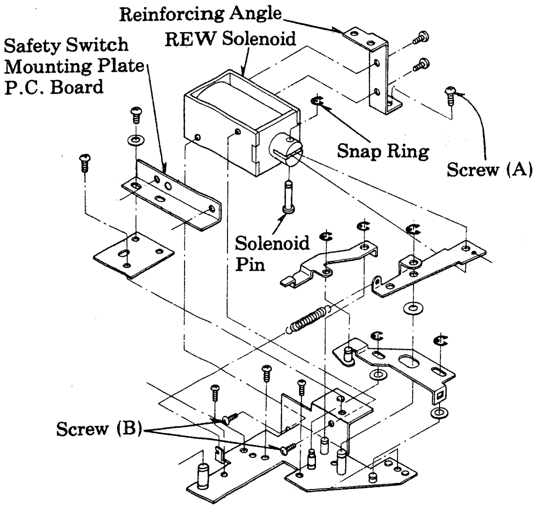
Reinforcing Angle
Safety Switch Mounting Plate
P.C. Board
REW Solenoid
Snap Ring
Screw (A)
Solenoid Pin
Screw (B)

Fig. 101

B. Rewind Force Adjustment Procedure

This adjustment may be necessary if the unit fails to rewind or if the rewinding action is extremely slow and uneven.

1. With the cassette compartment and base removed, close the cassette position micro switches by using adhesive tape.
2. Place the unit in the REW mode.
3. Hold the top of the Supply Reel and stop it.
   Make sure that the bottom half of the Supply Reel is still turning (slipping). If this happens, the unit does not need adjustment—proceed to Step 8.
   If there is no slipping perform the succeeding steps.
4. While in the rewind mode, adjust the position of the Rewind Thrust Sleeve so that the slipping—as described above just occurs—then fasten the thrust sleeve at this position.
   If slipping does not occur, the Supply Reel may need to be replaced.
5. After adjusting the Rewind Thrust Sleeve, it will be necessary to adjust the F.F Thrust Sleeve.
   In the rewind mode, move the position of the F.F. Thrust Sleeve so that the gap between the sleeve and the action arm is 1.6mm (the thickness of a penny).
6. Make sure that the clearance between the play belt and the Takeup Reel is 0.5mm or more. (Twice the thickness of the cover of any ordinary pack of book matches.)
7. Make sure that the REW/F.F Roller does not contact with the Takeup Reel Table in the stop mode.
8. Verify Rewind force by placing the 90mm diameter reel on the Supply Reel Table, and connect the tension gauge (500gr max./VFK63) to the end of the tape.
9. Place the unit in the REW mode.
   Measure the REW force and make sure that it is more than 350gr.
   * When measurement is made by using a torque gauge (VFK70), connect the torque adaptor to the torque gauge, and place the adaptor on the reel table.
     Measure the torque and make sure that it is more than 1,600gr-cm.
10. If the REW force or torque is not as specified, the Supply Reel may need to be replaced.

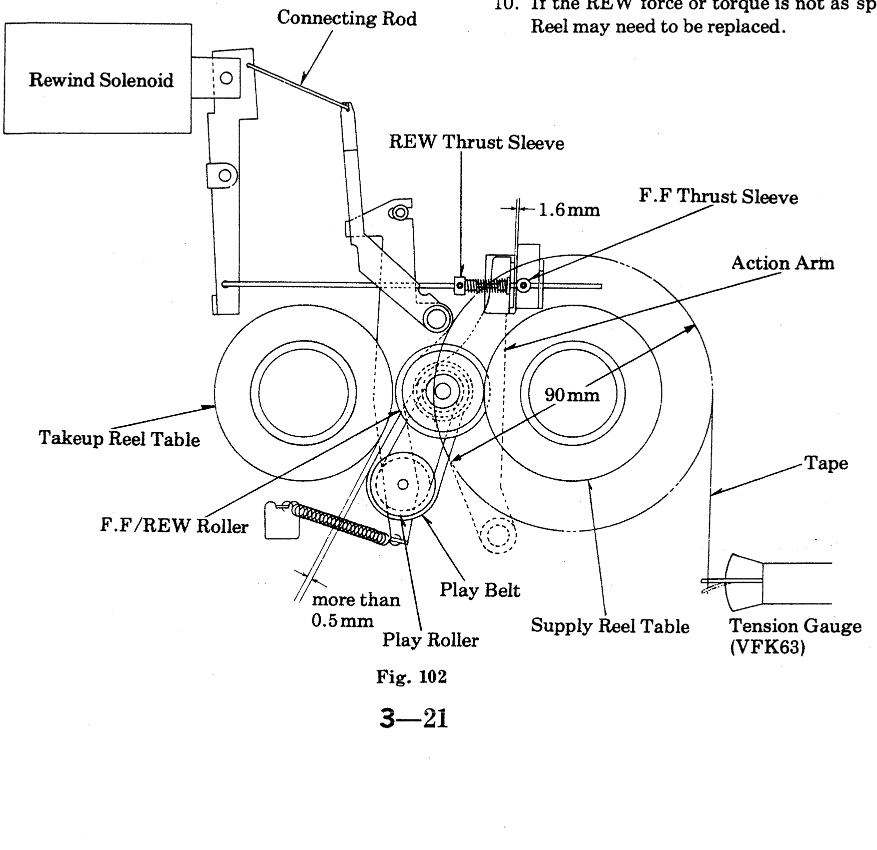
Connecting Rod
Rewind Solenoid
REW Thrust Sleeve
1.6mm
F.F Thrust Sleeve
Action Arm
90mm
Takeup Reel Table
Tape
F.F/REW Roller
Play Belt
more than 0.5mm
Play Roller
Supply Reel Table
Tension Gauge (VFK63)

Fig. 102

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27. CYLINDER FREE RUNNING CHECK

1. Free Running 1,524—1,527 R.P.M.
   a) Short TP209 to ground.
   b) Connect a counter to TP203.
   c) Turn the power switch on without putting the tape on.
   d) Measure period of the pulse.
      The period must be within: 39.29—39.37 msec.
   e) If not, then replace cylinder pulley with a different diameter. (See Chart)
      Note: N = 1,524 r.p.m. (Speed of cylinder)
      n = 1,524 r.p.s.
      T = 1/n = 1,524/60 = 0.03937 (sec)
      = 39.37 msec
2. Tape Speed Check (Adjustment)
   a) Before checking, be sure that the capstan belt, servo belt, the intermediate and motor pulleys and the flywheel are clean.
   b) Connect the frequency counter to the AUDIO LINE OUT connector.
   c) Playback the 3 kHz audio signal at the beginning, middle, and end portion of the tape at least twice.
   d) Confirm that the frequency of the LINE OUT signal is within 2,994 to 3,006 Hz.
      (Tape speed is within 9.51 cm/sec to 9.55 cm/sec) If the frequency is not within this range, a faster or slower, lower intermediate pulley must be chosen as necessary.
      Refer to the pulley chart.
      (If the frequency is below 2,994 Hz, select a faster pulley. If the frequency is above 3,006 Hz select a slower pulley.)

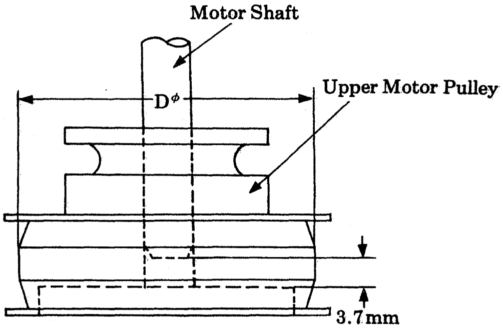


Fig. 103

Description	Part No.	Marking	Diameter (D ±0.01 mm)		
Cylinder Pulley (Free Running)	VDP0510B	B	42.28	Slower	
	VDP0510C	C	42.22	↑	(Scale: 1/2)
	VDP0510D	D	42.16		
	VDP0510E	E	42.10		
	VDP0510F	F	42.04		(A)
	VDP0510G	G	41.98		
	VDP0510H	H	41.92		
	VDP0510J	J	41.86	↓	
	VDP0510K	K	41.80	Faster	
Lower Intermediate Pulley (Tape Speed)	VDP0462	P	27.43	Slower	
	VDP0463	Q	27.50	↑	(Scale: 1/1)
	VDP0464	R	27.58		
	VDP0465	S	27.65	↓	(B)
	VDP0466	T	27.72	Faster	

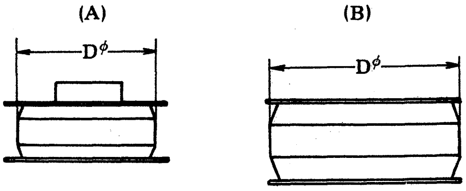
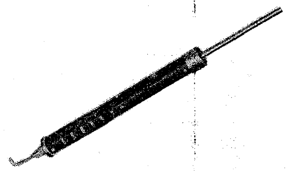


Fig. 104

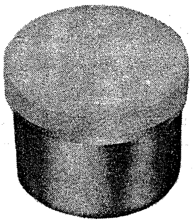
㉝/NV 9210

SERVICING JIG & TOOL

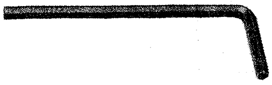
VFK38 Tension Gauge
VFK39
VFK62
VFK63
VFK70



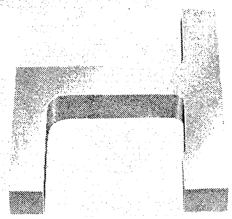
VFK52 Morlyton Grease



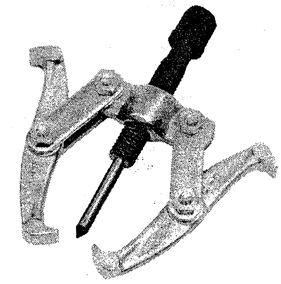
VFK48 Hex Wrench
VFK76
VFK77



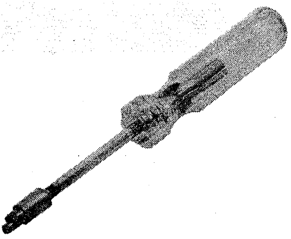
VFK54 Reel Height Measurement Tool



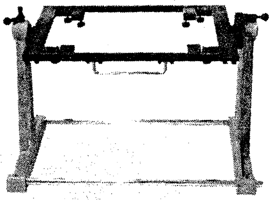
VFK0086 Pulley Remover



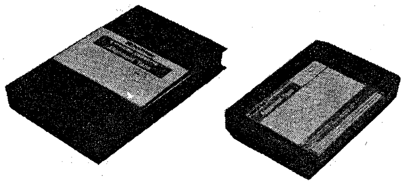
VFK0126 Eccentric Driver



VFK0149 Rotary Deck Supportor



VFM2181D Recorded Reference Tape
(Alignment Tape)



Head Height Hex Screw
XXE3C5FXKS

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MECHANICAL TROUBLESHOOTING GUIDE

[*EJECT MODE*]

1. **The cassette compartment does not move up.**
   A. Elevator motor does not rotate.
      1. The elevator motor relay (RY6301) might be defective.
         * This relay is located behind the sub-transport board (VEP0659A).
         To raise the cassette compartment, this relay must be engaged.
         Replace the relay.

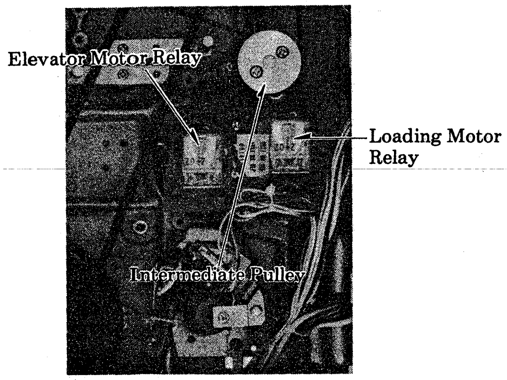

Fig. 1

      2. The eject switch (S6317) might be defective.
         * Connect a voltmeter to the terminal "P64-1" (Transport Board).
         This terminal becomes 0V when the eject button is pressed.
         If it does not, then the eject switch might be defective.
         Check the switch closely.
      3. The elevator motor (M6301) might be defective.
         * "P634-1" must be +12V and "P634-2" must be 0V to rotate the motor in the eject mode.
         (These connectors are attached to the motor.).
         Check the voltages first.
         If the motor still doesn't rotate, then replace it.

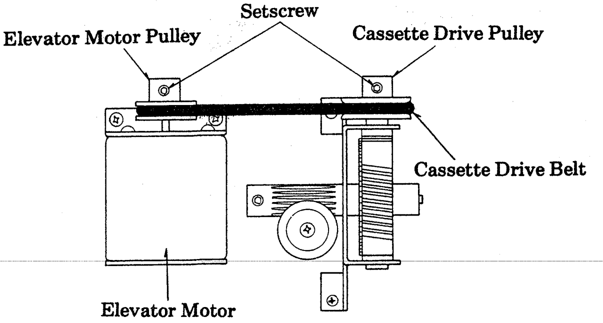

Fig. 2

   B. The setscrew holding the elevator motor pulley on its shaft or the cassette drive pulley might be loose. This causes the pulley to slip.
      * Tighten the setscrew.
   C. The cassette drive belt might be defective.
      * Replace the cassette drive belt.
   D. The pinion gear might be jammed.
      * Release the pinion gear and the rack gear by rotating the elevator motor pulley by hand. Usually misadjusted down switch position causes this problem.
      Readjust the down switch position.
      Refer to section of "Elevator Up Switch (S6312) and Down Switch (S6311) Replacement/Adjustment", page 3-6.
   E. The setscrew holding the pinion gears or the worm gear or the spur gear might be loose.
      This causes the gears to slip.
      (Torque can not be transmitted to the rack shaft.)
      * Tighten the setscrews.

2. **The elevator motor (M6301) does not stop when the cassette compartment reaches its top position.**
   A. The up switch (S6312) position might be off.
      * Check the position relationship between the up switch and the actuator.
      If the actuator does not press the switch, adjust the switch position.
      Refer to section of "ELEVATOR UP SWITCH (S6312) AND DOWN SWITCH (S6311) REPLACEMENT/ADJUSTMENT", page 3-6.
      * If the switch is defective, replace it.
      (Connect the voltmeter to the terminal "P69-3" of the transport board. If this terminal does not become high (Approx. 10V), the switch might be defective.)

3. **The unloading switch (S6308) might not be closed.**
   * The setscrew on the loading arm might be loose. This causes the position relationship between the loading arm and the loading arm guide to become incorrect.
   Thighten the setscrew.

4. **The unloading switch (S6308) might be defective.**
   * This switch closes when unloading is completed.

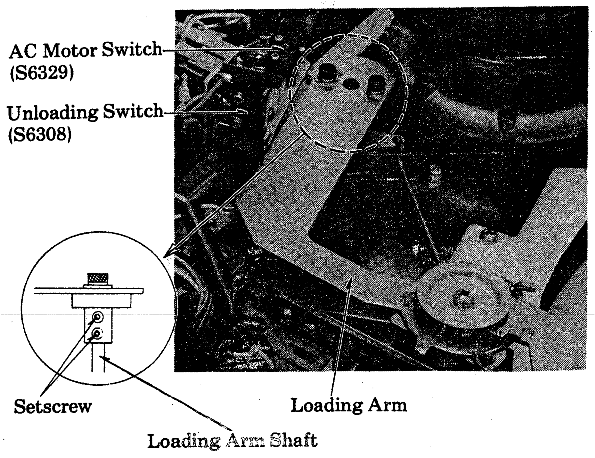

Fig. 3

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[*WITH THE CASSETTE INSERTED*]

1. **The cassette case can not be inserted into the cassette compartment.**
   - A. The lid of the cassette compartment is getting between the switch actuator and the front switch (S6306).
     - * Remove the cassette compartment and then install again it so that the lid of the cassette compartment is set as shown in Fig. 4.

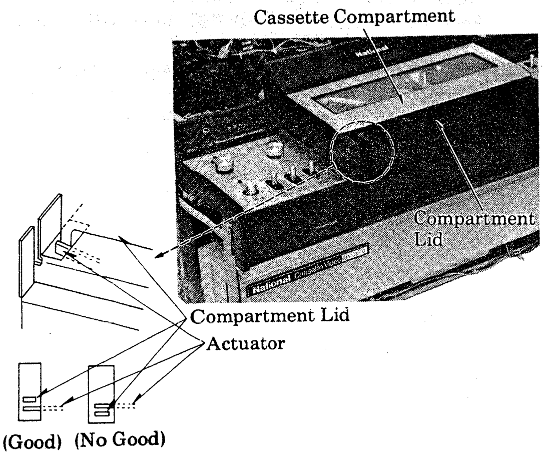

Fig. 4

2. **The cassette compartment will not lower.**
   - A. The cassette door is not opened due to incorrect position of the claw of the cassette compartment base assembly which opens or closes the door.
     - * Adjust the position of the claw by bending it.
   - B. The cassette is not inserted correctly into the cassette compartment.
     - * Pull the cassette out from the cassette compartment, insert it again straight into the cassette compartment.
   - C. The right or left position switches (S6304 or S6305) might be defective.
     The cassette compartment will never go down if either one is defective.
     - * Replace the micro switch.

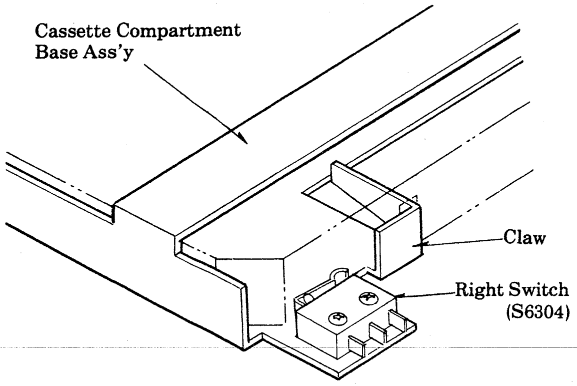

Fig. 5

   - D. The elevator motor (M6301) might be defective.
     - * Replace the elevator motor.
       Refer to section "ELEVATOR MOTOR REPLACEMENT/ ADJUSTMENT", page 3-7.
   - E. The cassette drive belt might be defective.
     - * Replace the cassette drive belt.
   - F. The F.F, FWD, or REW switches might be defective.
     - * Check these switches closely. (Refer to "EJECT CIRCUIT".)
   - G. The unloading switch (S6308) might not be closed. (Or may be defective.)
     The loading arm closes this switch.
     - * Check the position replationship between the loading arm and the unloading switch, or check this switch closely.

3. **The elevator motor stops before the cassette compartment reaches its bottom position.**
   - A. The cassette compartment touches the front control panel.
     - * Adjust the position of the front control panel.

4. **The loading process will not take place in the FWD mode.**
   - A. The loading motor (S6302) does not rotate.
     1. The loading motor might be defective.
        - * Replace the loading motor.
          Refer to section "Loading Motor Replacement", page 3-7.
     2. The down switch (S6311) might be defective, or its position is off.
        - * Replace the down switch or readjust its position.
   - B. The loading motor rotates, however will not go into the loading process.
     1. The setscrew holding the loading motor pulley on the motor shaft might be loose.
        This causes the loading motor pulley to slip.
        (Torque can not be transmitted to the loading gear.)
        - * Tighten the setscrew of the loading motor pulley.
     2. The loading belts might be defective.
        - * Replace the loading belts.

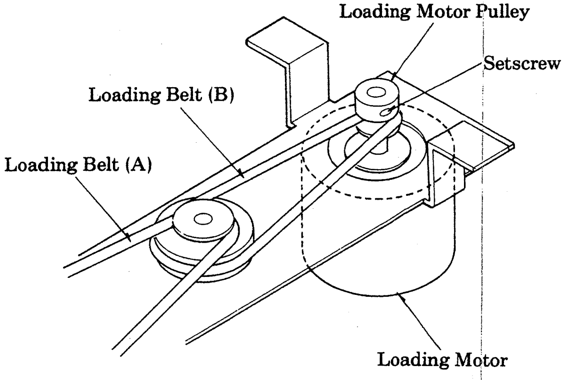

Fig. 6

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[*LOADING MODE*]

1. **The AC motor does not rotate.**
   A. The AC motor switch (S6329) might be defective.
      * When this switch closes, the AC motor rotates if the cassette compartment is its bottom position.
   B. The loading arm does not press the AC motor switch.
      * Check the switch position and adjust it if necessary.
   C. The AC motor (M6303) might be defective.
      * Replace the AC motor.
      Refer to section "AC MOTOR REPLACEMENT", page 3-8.
   D. The AC motor relay (RY6303) might be defective.
      * This relay energizes when the AC motor switch (S6329) is closed.

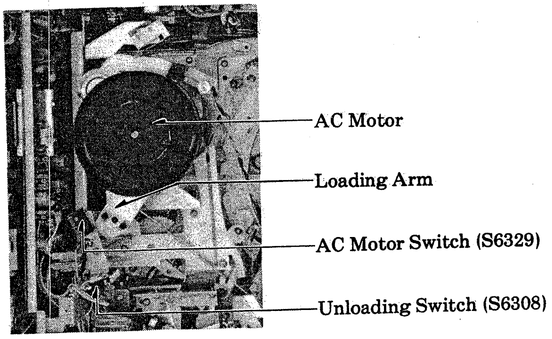

Fig. 7

2. **AC motor rotates, however the cylinder does not rotate.**
   A. The setscrew on the motor pulley or the cylinder pulley might be loose.
   This causes the AC motor or the cylinder pulley to turn without transmitting the torque.
   Tighten the setscrew of the pulley.
   B. The control belt might be defective.
      * Replace the control belt.

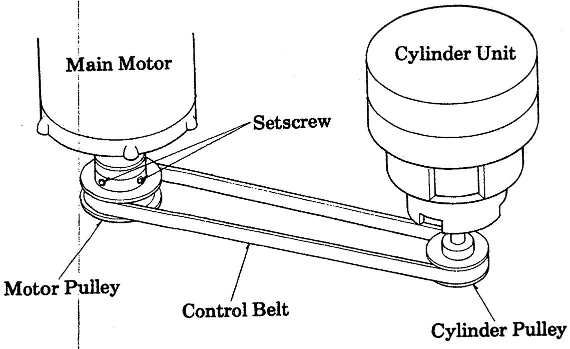

Fig. 8

3. **Improper tape loading occurs when the tape is withdrawn from the supply reel table and the tape moves to the upper part or lower part of the guide post.**
   A. Adjust the fixed tension.
      * Refer to section "Fixed Tension Assembly Replacement/Adjustment", page 3-12.
   B. Adjust the back tension force.
      * Refer to section "BACK TENSION BAND ASSEMBLY REPLACEMENT/ADJUSTMENT", page 3-12.

4. **The tape scratches when the pressure roller contacts the capstan shaft at the completion of loading.**
   A. The pressure roller is not parallel with the capstan shaft.
      * Adjust the pressure roller parallelism.
      Refer to section "PRESSURE ROLLER REPLACEMENT/ADJUSTMENT", page 3-9.
   B. The right and left clearance between the V-shaped grove of the pressure arm and the pressure roller are not uniform when the pressure arm presses on the pressure roller.
      * Adjust it by screws.

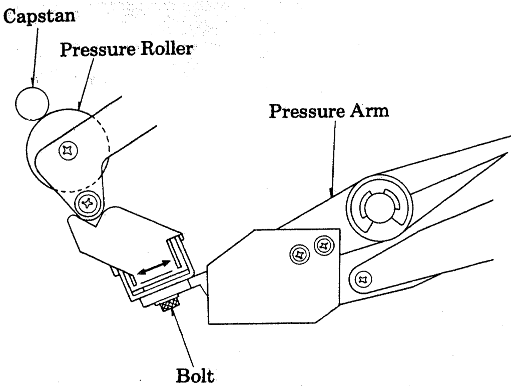

Fig. 9

5. **The pressure roller does not properly press on the capstan at the completion of loading.**
   A. The position of the locking piece attached to the pressure arm is incorrect, causing improper pressure.
      * Adjust the position of the locking piece so that the clearance between the lock pin and the locking piece is 0.5 mm when the pressure arm is turned to the capstan shaft completely by the eccentric idler.
      After adjustment, check the pressure force.
      (Refer to section "PRESSURE ROLLER REPLACEMENT/ADJUSTMENT", page 3-9.)

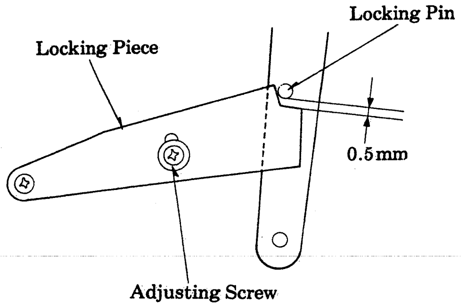

Fig. 10

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[*FORWARD MODE*]

1. **Tape does not run.**
   - A. Tape does not run due to insufficient pressure of the pressure roller.
     - * Refer to section "PRESSURE ROLLER REPLACEMENT/ADJUSTMENT", page 3-9.
   - B. The capstan does not rotate.
     1. The capstan belt might be defective.
        - * Replace the capstan belt.
     2. The servo belt might be defective.
        - * Replace the servo belt.
2. **The takeup reel does not rotate.**
   - A. The takeup reel table assembly does not rotate due to a defective play belt or the rewind belt.
     - * Replace the play belt or the rewind belt.
   - B. The setscrew on the large pulley might be loose causing the pulley to turn freely without transmitting torque to the shaft.
     - * Tighten the setscrew on the large pulley.
   - C. The takeup reel table assembly sticks.
     - * Replace the takeup reel table assembly and also replace the reel shaft.
   - D. The takeup reel table assembly does not rotate even though the bottom portion is being driven by the play belt.
     - * Replace the takeup reel table assembly.
3. **Excessive wow and flutter.**

   Wipe and clean all rotating parts including capstan shaft, pressure roller, pulleys and belts. If this does not cure the problem, replace the following parts.
   - a. Supply Reel Table Assembly.
   - b. Capstan Shaft.
   - c. Pressure Roller Unit.
   - d. Flywheel.
   - e. Capstan Belt.
   - f. Servo Belt etc.,
4. **Noise occurs at the capstan.**
   - * Replace the capstan bearing.
5. **Weak back tension causes no picture.**
   - A. Adjust the back tension.

     Refer to section "BACK TENSION BAND ASSEMBLY REPLACEMENT/ADJUSTMENT", page 3-12.

[*STOP MODE*]

Loading ring stops during the unloading (safety switch functions).

This might be caused as follows:
- A. Play belt might be defective.
  - * Replace the play belt.
- B. Takeup reel table might be jammed.
  - * Replace the takeup reel table assembly.
- C. The setscrew on the REW/F.F roller might be loose.

  This causes the shaft to turn freely without transmitting to the REW/F.F roller.
  - * Tighten the setscrew.

[*REWIND MODE*]

1. **No rewinding of the tape.**
   - A. The rewind solenoid might not be energed.

     This causes the REW/F.F roller not to contact the supply reel table.
     - * Check the REW solenoid circuit first.

       Then, replace the rewind solenoid if necessary. Refer to section "REWIND SOLENOID REPLACEMENT/ADJUSTMENT", page 3-21.
   - B. The rewind belt might be defective.
     - * Replace the rewind belt.
   - C. The setscrew on the REW/F.F roller might be loose. This causes the shaft to turn freely without transmitting to the REW/F.F roller.
     - * Tighten the setscrew.
2. **REW torque is insufficient.**
   - * Refer to section "REW SOLENOID REPLACEMENT/ADJUSTMENT", page 3-21.

[*FAST FORWARD MODE*]

1. **There is no action in the F.FWD mode.**
   - A. F.F solenoid might not be energed.

     This causes the play belt (REW/F.F roller) not to contact the takeup reel table.
     - * Check the F.F solenoid circuit first.

       Then, replace the F.F solenoid if necessary.

       Refer to section "F.F SOLENOID REPLACEMENT/ADJUSTMENT", page 3-19.
   - B. The play belt might be defective.
     - * Replace the play belt.
   - C. The setscrew on the REW/F.F roller might be loose.

     This causes the shaft to turn freely without transmitting to the REW/F.F roller.
     - * Tighten the setscrew.
2. **F.F torque is insufficient.**
   - * Refer to section "F.F SOLENOID REPLACEMENT/ADJUSTMENT", page 3-19.

[*SAFETY SWITCH FUNCTION*]

The safety switch does not work when the tape is slack in the FWD or unloading mode.

- A. The reed switch (S6363) might be defective.
  - * Replace the reed switch.

    Refer to section "SAFETY SWITCH (REED SWITCH) REPLACEMENT", page 3-16.
- B. The magnet might be off from the tension arm.
  - * Replace the takeup tension arm assembly, or glue the magnet to the original position.

    The magnet must be glued in the correct way. (See fig. 11)
- C. The magnet is too far from the reed switch to activate it.
  - * Refer to section "SAFETY SWITCH REPLACEMENT", page 3-16.

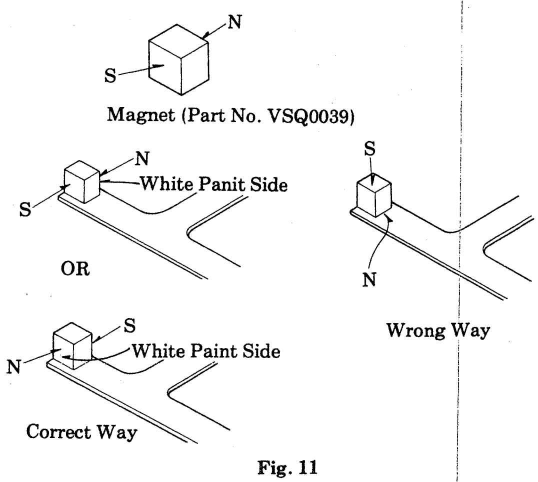

Fig. 11

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M E M O

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ELECTRICAL ADJUSTMENTS

Test Equipment

1. VTVM (Vacuum Tube Volt Meter).
   Voltage Range: 0.005—50V
2. Dual Trace Oscilloscope with Delay Function.
   Voltage Range: 0.005—5V/div
   Frequency Range: 20MHz
   Probes: 10 : 1 and 1 : 1
3. Frequency Counter.
   Frequency Range: 0—10MHz
4. Signal Generator.
   Split-Field Colour Bar Signal
   Stairstep Signal
   Sine Wave Signal; Frequency Range: 0—10MHz
5. Reference Test Tape (VFM2180D).
   CCIR Monoscope Pattern Signal (Audio: 1kHz—10dB)
   Colour Bar Signal with Music
   Only Control Signal (Audio: 3kHz, 0dB)
6. Sweep Generator.
7. Colour Monitor TV.
8. Plastic Tip Driver.

NOTE:
When stated in the service manual, Rec mode means Recording with the tape running. E-E mode means the Rec. button is pressed, but the tape is not running.

When To Make Adjustments

Servo Control Circuit

The Servo Control Circuit may need adjustment if:
1) There is total loss of Servo.
   (Noise bar running through picture).
2) Exceptionally noisy pictures are produced.
3) Heads switch at wrong point, when the recorded reference tape (VFM2180D) played back.

Video & Colour Circuits

Video and Colour Circuits may need adjustment if:
1) There are very low or high output levels.
2) There is no playback or E-E picture or loss of colour.
3) There is a beat in the picture.

Head Amp Circuit

The Head Amp Circuit may need adjustment if:
1) The Playback signal is not balanced.
2) There is flicker in playback sweep signal.
3) There is color flicker. (See note in section 5)

Follow entire adjustment procedure to make a total alignment of the unit.

1. Power Supply Circuit

Before adjusting the Power Supply Circuit, always check the AC input voltage.
All controls and test points are located on the Power Supply Circuit Board (VEP0154B).

1-1. DC +12V Adjustment

1. Connect a VTVM to TP101.
2. Adjust the +12V Adj (R102) for 12.0±0.2V.

1-2. DC +24V Adjustment

1. Connect a VTVM to TP102.
2. Adjust the +24V Adj (R110) for 24.0±0.2V.

2. Servo Control Circuit

2-1. Control Head Output Confirmation

1. Connect the scope with 1X probe to TP201 on the Servo Control Circuit Board (VEP0266C).
2. Play back the recorded reference tape (VFM2180D).
3. Confirm the waveform at TP201 as shown in Fig. 1.

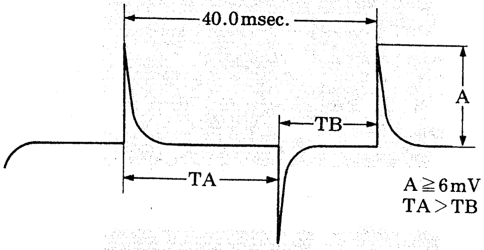

Fig. 1-a

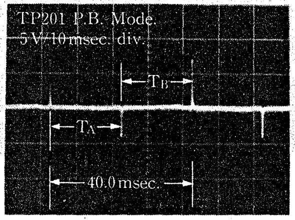

Fig. 1-b

2-2. Detection Coil Output Confirmation

1. Connect the scope to TP204 on the Servo Control Circuit Board (VEP0266C).
2. Play back the recorded reference tape (VFM2180D).
3. Confirm the waveform at TP204 as shown in Fig. 2.
4. Connect the Scope to TP205, and confirm waveform as shown in Fig. 2.

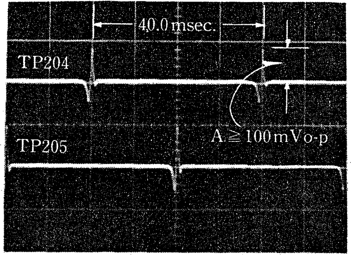

Fig. 2

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2-3. Head Switching Adjustment

1. Connect TP503 and TP504 on the Head Amp Circuit Board (VEP0531A) to ground with jumpers, preventing the switching pulses from being applied to the Head Amp.
2. Connect the scope CH1 to TP203 (switching pulse) on the Servo Control Circuit Board (VEP0266C) and CH2 to TP506 (FM envelope) on the Head Amp Circuit Board (VEP0531A). Use TP203 for trigger of the scope.
3. Play back the recorded reference tape (VFM2180D) and set the scope to the CHOP mode.
   Adjust the Tracking control (R6310) on the top panel for the best tracking (maximum envelope).

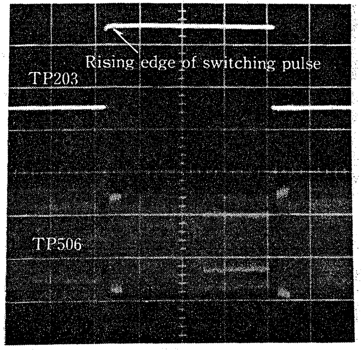
Rising edge of switching pulse
TP203
TP506

Fig. 3-a

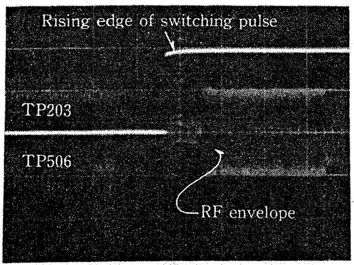
Rising edge of switching pulse
TP203
TP506
RF envelope

Fig. 3-b

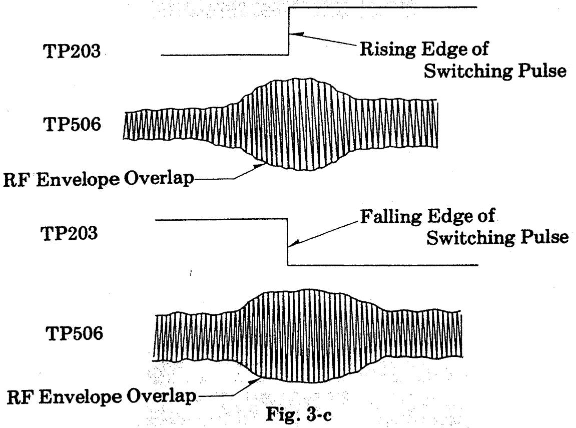
TP203
Rising Edge of Switching Pulse
TP506
RF Envelope Overlap
TP203
Falling Edge of Switching Pulse
TP506
RF Envelope Overlap

Fig. 3-c

Then set the scope to the delayed mode and expand the portion of the FM envelope (signal at TP506) which is coincident with the rising edge of the switching pulse signal at TP203, as shown in Fig. 3-(c).
Now adjust SW Position 2 (R219) to place the rising edge of the switching pulse in the center of the overlapped region of the FM envelope. The overlapped region occurs as a result of both video heads being constantly on (No Head Switching) and there is double output during that portion when both heads are in contact with the tape.

Now adjust the delay of the scope to display the portion of the FM envelope coincident with the falling edge of the switching pulse, as shown in Fig. 3-(c).
Adjust SW Position 1 (R217) to place the falling edge of the switching pulse in the center of the overlapped region of the FM envelope.

4. After above adjustments, disconnect jumpers and make sure that no switching noise at the head switching point occurs on the TV screen. See Figs below.

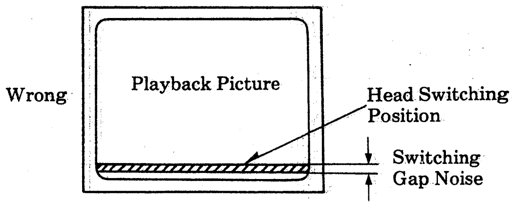
Wrong
Playback Picture
Head Switching Position
Switching Gap Noise

Fig. 3-d

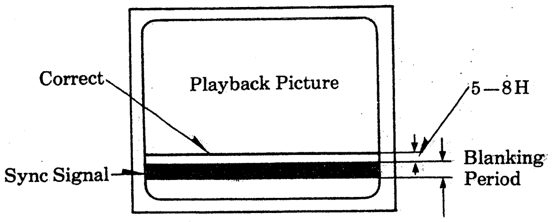
Correct
Playback Picture
5—8H
Blanking Period
Sync Signal

Fig. 3-e

5. The additional V.Sync Pulse used in the Pause mode is derived from the head switching pulse. Therefore the head switching pulse must be adjusted to provide a duty cycle of exactly 50%, otherwise Vertical Jitter will result during the Pause mode.
   Play back the recorded reference tape (VFM2180D) and place the unit in the Pause mode. Adjust the still lever on the front panel to move the noise bar to the upper third of the picture as it appears on the monitor. Now re-adjust SW Position 2 (R219) so that any Vertical Jitter is eliminated.

2-4. V.S.S. & 1/2 M.M. Confirmation

1. Supply a video signal to the video input on the rear panel, and place the unit in the E-E mode.
2. Connect the scope to TP206 on the Servo Control Circuit Board (VEP0266C).
3. Make sure that the T portion of the waveform at TP206 is 21—29msec. as shown in Fig. 4.

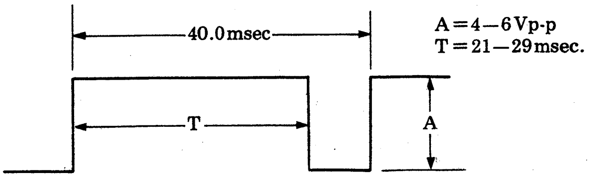
40.0msec
A=4—6Vp-p
T=21—29msec.
T
A

Fig. 4-a

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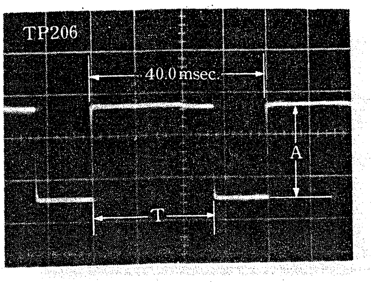
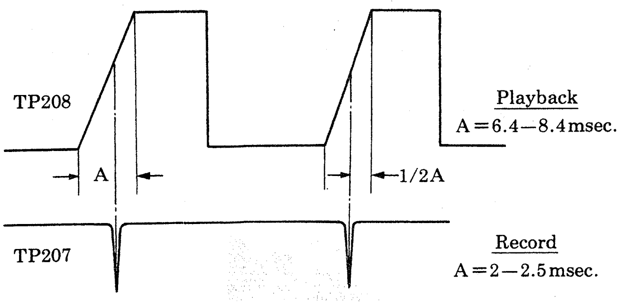


Fig. 4-b

2-5. Phase Comparator Confirmation in the Playback and Record Modes

1. Connect the scope CH1 to TP207 and CH2 to TP208 on the Servo Control Circuit Board (VEP0266C).
   Use TP208 for trigger.
2. Play back the recorded reference tape (VFM2180D) and set the scope to the CHOP mode.
3. Make sure that the pulse of TP207 occurs at the center of the sloped portion of the trapezoidal waveform of TP208 as shown in Fig. 5-(c).
   Also confirm the duration of the sloped portion to be between 6.4—8.4msec., as shown in Fig. 5-(c).
4. Now supply a video signal to the video input on the rear panel, and place the unit in the Rec mode.
5. Make sure that the pulse at TP207 occurs at the center of the sloped portion of the signal at TP208. Also confirm that the duration of the sloped portion is now 2—2.5msec., as shown in Fig. 5-(b).



TP208
TP207
A
1/2A
Playback
A=6.4—8.4msec.
Record
A=2—2.5msec.

Fig. 5-a

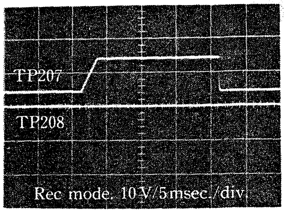


Fig. 5-b

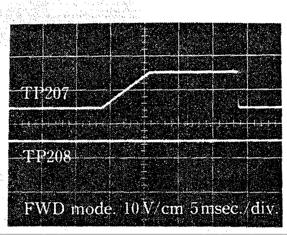
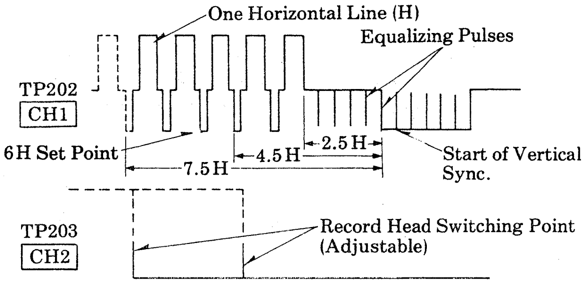


Fig. 5-c

2-6. Head Switching Position Adjustment

1. Supply a video signal to the video input on the rear panel and place the unit in the Rec mode.
2. Connect the scope CH1 to TP202 and CH2 to TP203 on the Servo Control Circuit Board (VEP0266C).
   Trigger by TP203 and set the scope to the CHOP mode.
3. Also set the scope to the delayed mode and expand the vertical interval of the signal from TP201.
   Adjust Rec Phase (R225) so that the record head switching point is 5—8H before the start of vertical sync as shown in Fig. 6-(a), (b).



One Horizontal Line (H)
Equalizing Pulses
TP202
CH1
6H Set Point
7.5H
4.5H
2.5H
Start of Vertical Sync.
TP203
CH2
Record Head Switching Point (Adjustable)

Fig. 6-a

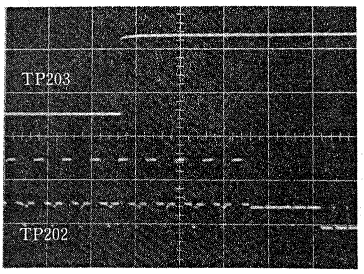
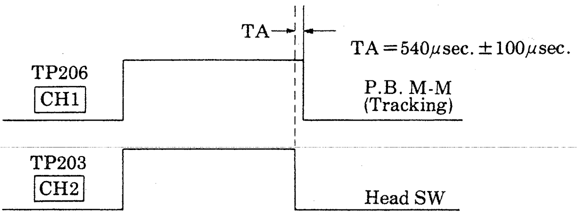


Fig. 6-b

2-7. Fixed Tracking Adjustment and Tracking Confirmation

1. Supply a video signal to the video input on the rear panel.
2. Set the Tracking Control (R6310) on the top panel to the FIX position.
3. Set the unit in the Rec. mode and make a recording.
4. Connect the scope CH1 to TP206 and CH2 to TP203 of the Servo Control Circuit Board (VEP0266C). Trigger by TP203, and set the scope to the CHOP mode.
5. Play back the recorded portion of the tape.
6. Adjust the Tracking Fix (R215) so that TA is 540μsec. ± 100μsec. as shown in Fig. 7-(a), (b).
   (or) Connect the scope to TP506 on Head Amp Circuit Board (VEP0531A) and adjust Tracking FIX (R215) for maximum envelope at TP506.



TA
TA=540μsec. ± 100μsec.
TP206
CH1
P.B. M-M (Tracking)
TP203
CH2
Head SW

Fig. 7-a

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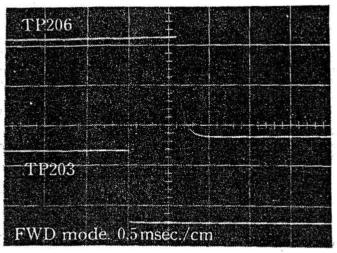
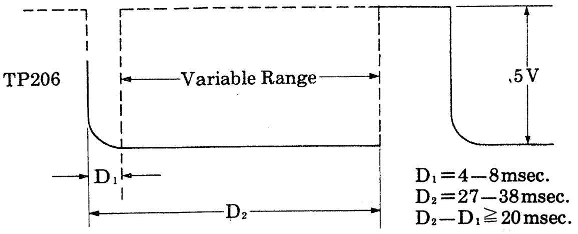


Fig. 7-b

7. Now make sure that the variable range (D_1-D_2) is from 4—8 msec. to 27—38 msec. as shown in Fig. 8, as the tracking control on the top panel is turned through its range.



$D_1=4-8$msec.
$D_2=27-38$msec.
$D_2-D_1 \geqq 20$msec.

Fig. 8

2-8. Still Free-Running Speed

1. Connect the scope to TP203 on the Servo Control Circuit Board (VEP0266C) and set the scope to trigger from the AC Line (AC Line mode).
2. Playback the recorded reference tape (VFM2180D) and place the unit in the Pause mode.
3. Adjust Still FR (R234) until the waveform at TP203 becomes stationary.

2-9. Phase Adjustment of Additional V Pulse in Still Mode

1. Supply a video signal to the video input on the rear panel. Place the unit in the Rec mode and make a recording.
2. Connect the scope CH1 to TP823 (video output) on the Video Playback Circuit Board (VEP0838B1) and CH2 to TP210 on the Servo Control Circuit Board (VEP0266C). Trigger by TP210 and set the scope to the CHOP mode.
3. Play back the recorded portion of the tape and place the unit in the Still mode. Adjust still lever to move the noise bar to the upper third of the picture, as it appears on the monitor.
4. Set the scope to the delayed mode to expand the vertical interval portion of the signal from TP823.
5. Adjust Sync Position (R246) on the Servo Control Circuit Board (VEP0266C) so that there are 4 equalizing pulses before the appearance of the added vertical pulses as shown in Fig. 9-(a), (b).

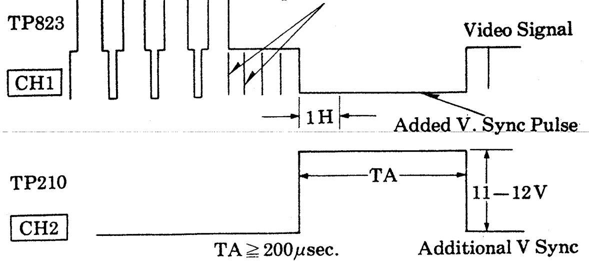


Fig. 9-a

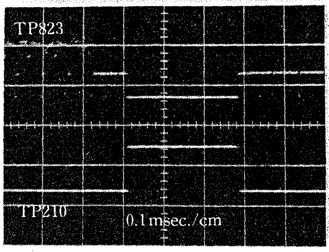


Fig. 9-b

2-10. Audio/Control Head Positioning

Normally, the Audio/Control (A/C) Head will not have to be positioned.

But positioning will be necessary if:

CASE 1.) The A/C Head is defective and must be replaced.

CASE 2.) There is poor tape interchangeability with the unit, after servo adjustments have been performed.

Note: A/C positioning is not the same as A/C Height, Tilt and Azimuth adjustments. Positioning constitutes a latial movement of the head, which if done properly will not affect the Height, Tilt or Azimuth. Positioning affects the Servo circuits, and is used in maximizing tracking.

Case 1.

1. If the A/C Head needs to be replaced, carefully unsolder the wires, remove the screw (a), (b), (c) and (d) and lift out the head. Install the new head as close as possible in the position of the old head. Tighten screw (a), (b), (c) and (d) and reconnect the wire.
2. Now perform A/C Height, Tilt and Azimuth adjustments as described in the audio adjustment section pages, 5-5.
3. Confirm the Fixed Tracking Adjustment, page, 5-5.
4. Loosen the screw (a), (b), (c) and (d) on the A/C head. Connect the scope to TP506 on the Head Amp. Circuit Board (VEP0531A) and play back the recorded reference tape (VFM2180D).
5. Gently move the A/C Head in a lateral position so that the waveform at TP506 becomes maximum (Maximum envelope). Re-tighten screw (a), (b), (c) and (d).

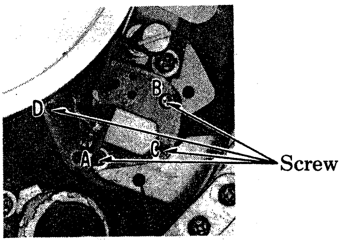


Fig. 10

Case 2.

If the A/C Head is not properly positioned, tapes made on other units may not play back on the unit with good tracking. To improve interchangeability.

1. Perform steps 3., 4., 5., outlined in Case 1.

3. *Audio Circuit*

3-1. Output Level and Electronic Switching Confirmation

1. Connect the scope to TP404 on the Audio Circuit Board (VEP0435A1).
2. Supply a 1kHz sine wave signal at −20dB (0.28Vp-p) to the audio input jack CH1 on the rear panel. Set the input switch on the front panel to the Line position and place the unit in the E-E mode.
3. Confirm voltage at TP404 to be 2.26—3.57Vp-p.
4. Press the Stop button on the front panel. Now confirm the voltage to be under 28mVp-p.
5. Supply a 1kHz sine wave signal at −20dB (0.28Vp-p) to the audio input jack CH2 on the rear panel. Set the input select switch on the front panel to the Line position and place the unit in the E-E mode.
6. Connect the scope to TP409 on the Audio Circuit Board (VEP0435A1) and confirm the voltage to be 2.26—3.57Vp-p.
7. Press the Stop button on the front panel and confirm voltage is now under 28mVp-p.

3-2. Recording Equalizer Adjustment

1. Place the unit in the Stop mode. Connect TP416 and TP417 on the Audio Circuit Board (VEP0435A1) to ground with jumper cables.
2. Connect the scope to TP405 on the Audio Circuit Board (VEP0435A1).
3. Supply a 16kHz sine wave signal at −40dB (0.028Vp-p) to the audio input jack CH1 on the rear panel and set the input selector on the front panel to the Line position. Place the unit in the Rec. mode.
4. Observe the waveform at TP405 and adjust Recording E.Q. (L403) so that the voltage becomes maximum, 5.4Vp-p or greater.
5. Now connect the scope to TP410 on the Audio Circuit Board (VEP0435A1) and supply a 16kHz sine wave signal at −40dB (0.028Vp-p) to the audio input jack CH2 on the rear panel.
6. Observe the waveform at TP410 and adjust Recording E.Q. (L407) so that the voltage is maximum, 5.4Vp-p or greater.
7. Remove the jumper cables from TP416 and TP417.

3-3. Bias Trap Adjustment of Audio Rec Amp

1. Do not supply and audio signal to the audio inputs on the rear panel or front panel.
2. Connect the scope to TP405 on the Audio Circuit Board (VEP0435A1), and place the unit in the Rec mode.
3. Adjust Bias Trap (L404) so that the voltage becomes minimum, 5Vp-p or less.
4. Then, connect the scope to TP410 (CH2) on the Audio Circuit Board (VEP0435A1).
5. Adjust Bias Trap (L408) so that the voltage also becomes minimum, 5Vp-p or less.

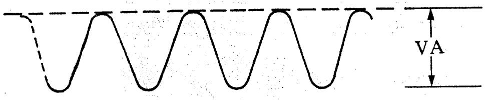


Fig. 11 VA≦5Vp-p

3-4. Bias Trap Circuit Adjustment

1. Connect the scope to TP404 on the Audio Circuit Board (VEP0435A1).
2. Do not supply any signal to the front or rear panel audio connectors. Place the unit in the Rec mode.
3. Adjust Bias Trap (L402) so that the voltage at TP404 becomes minimum, 0.2Vp-p or less.
4. Now connect the scope to TP409 on the Audio Circuit Board (VEP0435A1).
5. Adjust Bias Trap (L406) so that the voltage at TP409 becomes minimum, 0.2Vp-p or less.

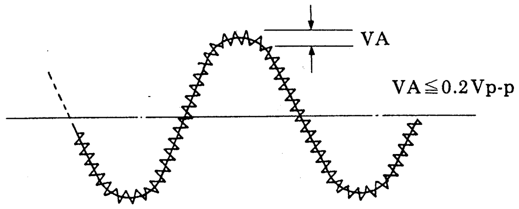


Fig. 12

3-5. Bias Oscillator Confirmation

1. Do not supply any audio signal to the audio inputs on the front or rear panel.
2. Connect the scope to TP413 on the Audio Circuit Board (VEP0435A1), and place the unit in Rec mode.
3. Make sure that the waveform at TP413 is as shown in Fig. 13.

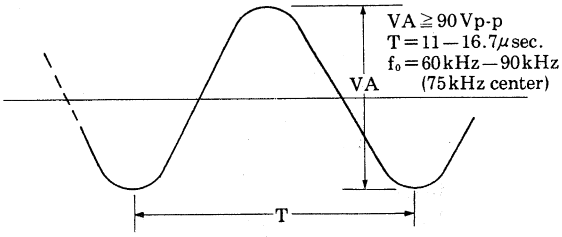


Fig. 13

3-6. Recording Bias Current Adjustments

1. Do not supply any audio signal to the audio inputs on the front or rear panels.
2. Disconnect the white wire of the audio head CH1, and put a 10Ω resistor between the head terminal and the white wire.
3. Connect the scope across the 10Ω resistor and place the unit in the Rec. mode.
4. Adjust CH1 Bias Adj (C4113) on the Audio Circuit Board (VEP0435A1) for a reading of 19.8Vp-p.
5. Remove the 10Ω resistor and resolder the white wire to the audio head.
6. Disconnect the white wire of the audio head CH2 and place the 10Ω resistor between the head terminal and the white wire.
7. Turn CH2 Bias Adj (C4114) on the Audio Circuit Board (VEP0435A1) and adjust to get a reading of 19.8Vp-p.
8. Remove the 10Ω resistor and re-connect the white wire.

3-7. Azimuth and Height of Audio/Control Head Adjustment

1. Connect the scope CH1 to TP404 and CH2 to TP409 on the Audio Circuit Board (VEP0435A1), and set the scope to the CHOP mode.
2. Play back the recorded reference tape (VFM2180D) at the 10kHz audio signal portion.
3. Adjust the azimuth and height of audio/control head so that the waveforms on the scope become maximum, and the phase of both waveforms becomes as shown in Fig. 14.

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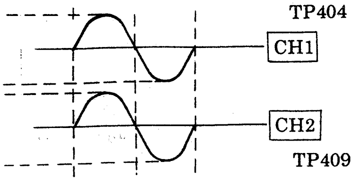

Fig. 14

3-8. Playback Equalizer and Playback Output Adjustment

1. Connect the scope to TP404 on the Audio Circuit Board (VEP0435A1).
2. Supply a 1kHz sine wave signal at −10dB (0.93Vp-p) to the audio input jack CH1 on the rear panel. Place the unit in the Rec mode, and make a recording.
   Measure the level of this signal at TP404 while recording. Now change the frequency of the input signal to 8kHz.
   Again measure the level at TP404.
3. Then, play back the recorded portion of the tape and adjust CH1 Playback E.Q. (R440) so that the level ratio of the 1kHz signal and the 8kHz signal are the same as was measured during record.
4. Adjust PB Level for CH1 (R441) so that the level of the 1kHz signal during playback becomes the same value as what was measured during record.
5. Connect the scope to TP409 on the Audio Circuit Board (VEP0435A1) and supply a 1kHz sine wave signal at −10dB (0.93Vp-p) to the audio input jack CH2 on the rear panel.
6. Place the unit in the Rec mode and make a recording. Measure the voltage at TP409.
7. Change the frequency of the signal to 8kHz and again measure the level at TP409.
8. Play back the recorded portion of the tape and adjust CH2 PB E.Q. (R4113) and PB Level CH2 (R4114) in the same manner as was done for CH1.

3-9. Bias Leak and Cross Talk Canceller Adjustment in Dub Mode

1. Do not supply any audio signal to the audio inputs on the rear panel.
2. Connect the scope to TP409 on the Audio Circuit Board (VEP0435A1).
3. Place the unit in the Rec mode and make a recording.
4. Play back the recorded portion, and supply a 5kHz sine wave signal at −20dB (0.28Vp-p) to the audio input (CH1) jack on the rear panel.
5. Place the unit in the Dub mode.
6. Adjust Cross Talk Cancel (R473) so that the cross talk voltage (VB) becomes minimum, 880mVp-p or less, as shown in Fig. 15.
7. Adjust Bias Trap (L405) so that the bias leak voltage (VA) becomes minimum, 250mVp-p or less, as shown in Fig. 15.

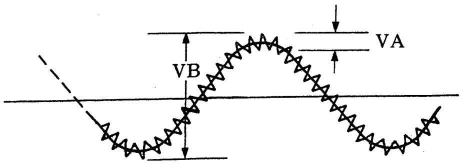

Fig. 15

4. *Video & Colour Circuit*

4-1. Limiter and Demodulator Balance Adjustment

1. Disconnect a connector P81 on the Video Playback Circuit Board (VEP0838B1).
2. Connect the scope to TP806 on the same circuit board, and place the unit in E-E mode.
3. Supply a 4.2MHz sine wave signal (0.1Vp-p) to TP801 on the same circuit board.
4. Fully turn NOISE CANCELLER (R863) clockwise, and set the Colour Mode Selector switch to B/W portion.
5. Adjust DEMODU BAL (R825) so that the 4.2MHz signal becomes minimum.
6. Adjust LIMITER BAL (R813) so that the 4.2MHz signal becomes minimum.
7. Repeat above steps 4 and 5, and make sure that the 4.2MHz signal level is 20mVp-p or less.
8. After adjustment, remove the 4.2MHz signal, and reconnect P81 connector.

Note: NOISE CANCELLER will need to be re-adjusted before the unit is put back into use.

4-2. AGC Standard Pulse Mix Ratio Adjustment

1. Set the Video Level switch on the front panel to AGC position.
2. Connect the scope to TP308 on the Video Recording Circuit Board (VEP0362A1).
3. Supply a PAL colour bar signal to the Video Input on the rear panel, and place the unit in E-E mode.
4. Adjust AGC PULSE LEVEL (R3105) so that the AGC pulse level becomes as shown in Fig. 16.

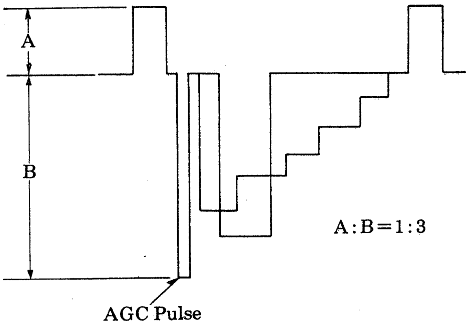

Fig. 16-a

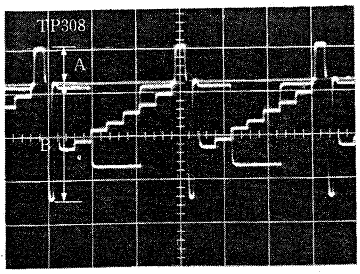

Fig. 16-b

4-3. Modulator Balance Adjustment

1. Do not supply any video signal to the Video Input on the rear panel, and place the unit in E-E mode.
2. Set the Colour Mode Selector switch to B/W portion.
3. Connect the scope to TP806 on the Video Playback Circuit Board (VEP0838B1) with a 1X probe.
4. Adjust MOD BAL (R376) on the Video Recording Circuit Board (VEP0362A1) so that the 4.2MHz compornent becomes minimum, 15mVp-p or less, as shown in Fig. 17.

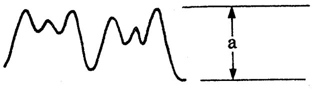

Fig. 17

4-4. Confirmation of Balance Adjustment

1. Supply a CCIR monoscope pattern signal to the Video Input on the rear panel.
2. Connect the scope to TP806 on the Video Playback Circuit Board (VEP0838B1), and set the Colour Mode Selector switch to B/W portion, and place the unit in E-E mode.
3. Make sure that the noise level of "Ⓐ" portion is equal to the noise level of "Ⓑ" portion as shown in Fig. 18.
4. When the excessive difference of noise level at "Ⓐ" and "Ⓑ" portions is occurred, adjust MODU BAL (R376), DEMODU BAL (R825) and LIMITER BAL (R813) so that the noise level of "Ⓐ" and "Ⓑ" portions becomes minimum.

Note: Confirm this matter after Modulation Balance Adjustment.

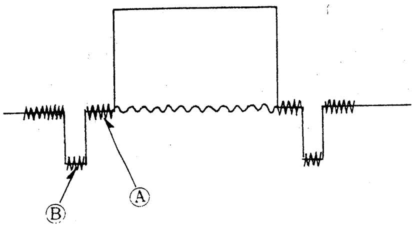

Fig. 18

4-5. Clamp Adjustment

1. Connect the scope to TP823 on the Video Playback Circuit Board (VEP0838B1).
2. Supply a PAL colour bar signal to the Video Input on the rear panel.
3. Supply a 4.2MHz sine wave signal at −30dB through 0.01μF capacitor to TP801 on the same circuit board. Set the frequency precisely with a frequency counter.
4. Place the unit in E-E mode.
5. Adjust CLAMP (R371) on the Video Recording Circuit Board (VEP0362A1) so that any beat on the pedestal portion of the waveform becomes minimum as shown in Fig. 19.

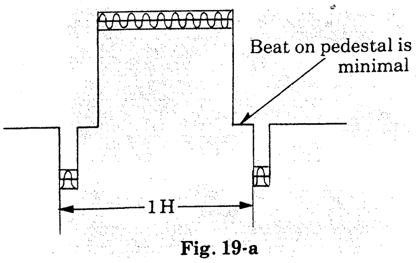

Fig. 19-a

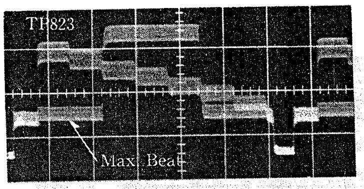

Fig. 19-b

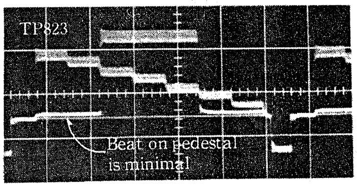

Fig. 19-c

4-6. Deviation Adjustment

1. Connect the scope to TP823 on the Video Playback Circuit Board (VEP0838B1).
2. Supply a PAL colour bar signal to the Video Input on the rear panel.
3. Supply a 5.4MHz sine wave signal at −30dB through 0.01μF capacitor to TP801 on the same circuit board. Set the frequency precisely with a frequency counter.
4. Place the unit in E-E mode.
5. Adjust DEVIATION (R359) on the Video Recording Circuit Board (VEP0362A1) so that any beat on the peak white portion of the waveform becomes minimum as shown in Fig. 20.

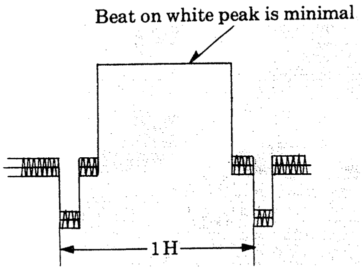

Fig. 20-a

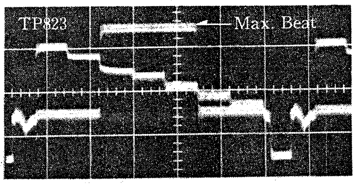

Fig. 20-b

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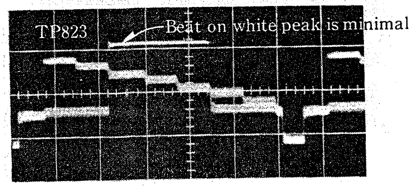

Fig. 20-c

4-7. White and Dark Clip Adjustment

1. Connect the scope to TP305 on the Video Recording Circuit Board (VEP0362A1).
2. Supply a PAL colour bar signal to the Video Input on the rear panel, and place the unit in E-E mode.
3. Adjust WHITE CLIP (R354) and DARK CLIP (R368) so that the white clip level and the dark clip level become as shown in Fig. 21.

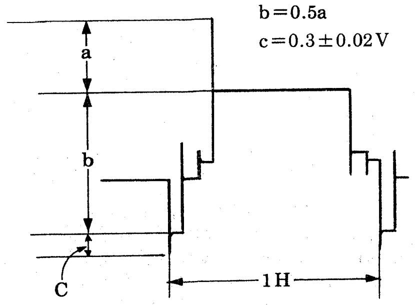

Fig. 21-a

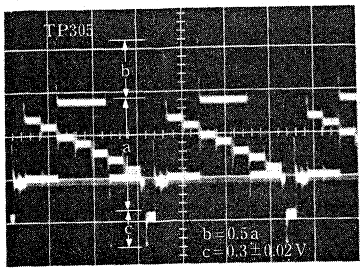

Fig. 21-b

4-8. FM/Chroma Recording Current Adjustment

1. Disconnect the short circuit jumper wire (CP-1) from the 10Ω resistor (R502) on the Head Amp Circuit Board (VEP0531A).
2. Supply a PAL colour bar signal to the Video Input on the rear panel.
3. Connect the scope to TP502 and TP501 (ground side) on the same circuit board.
4. Fully turn Y REC CUR (R3155) on the Video Recording Circuit Board (VEP0362A1) clockwise.
5. Place the unit in Rec Play mode with tape running.
6. Adjust CHROMA REC CUR (R3192) on the same circuit board so that the voltage of chroma signal becomes 90± 2mVp-p as shown in Fig. 22-a.
7. Now adjust Y REC CUR (R3155) so that the voltage of the FM signal becomes 450±10mVp-p as shown in Fig. 22-b.
8. Reconnect the short circuit jumper wire (CP-1) across the 10Ω resistor (R502).

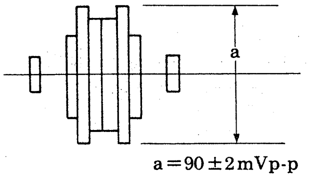

Fig. 22-a

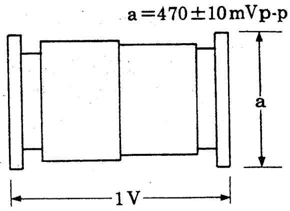

Fig. 22-b

Note: If the Head Amp. Circuit Board (VEP0531A) is going to be adjusted for frequency characteristics, do not do FM Signal Balance or Y (luminance) Signal Level Adjustment (Steps 4-9 and 4-10) at this time, as they will be performed after the Head Amp Adjustments. If the Head Amp is not going to be adjusted for its frequency characteristics, proceed with steps and now.

4-9. FM Signal Balance Adjustment

1. Connect the scope to TP506 on the Head Amp Circuit Board (VEP0531A).
2. Playback the recorded reference tape (VFM2180D).
3. Adjust FM MIX (R540) so that the FM envelope at TP506 is balanced within 1dB as shown in Fig. 23.

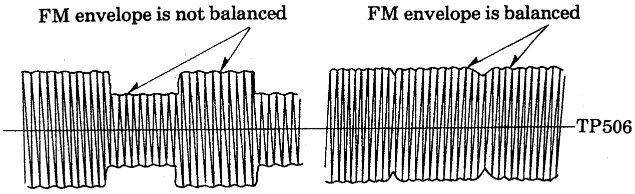

Fig. 23

4-10. Y (Luminance) Signal Level Adjustment

1. Connect the scope to TP823 on the Video Playback Circuit Board (VEP0838B1).
2. Supply a PAL colour bar signal to the Video Input on the rear panel and place the unit in E-E mode.
3. Set the colour mode selector switch to B/W portion.
4. Adjust B/W MODE LEVEL (R861) so that the level of the waveform at TP823 becomes 2Vp-p as shown in Fig. 24.
5. Set the Colour Mode Selector switch to COLOUR portion.
6. Adjust COLOUR MODE LEVEL (R852) so that the level of the waveform at TP823 becomes 2Vp-p as shown in Fig. 24.

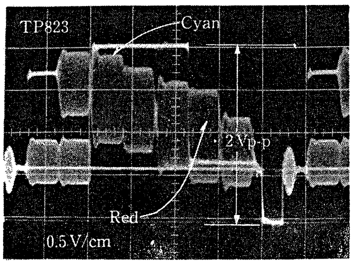

Fig. 24

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4-11. 5.12MHz Oscillation Frequency Adjustment

1. Do not supply any video signal to the Video Input on the rear panel.
2. Connect a frequency counter to TP312 on the Video Recording Circuit Board (VEP0362A1).
3. Place the unit in E-E mode.
4. Adjust 5.12MHz FREQ (C393) so that the indication of the frequency counter becomes 5.119166MHz ± 50Hz.

4-12. 4.43MHz Oscillator Adjustment

1. Do not supply any video signal to the Video Input on the rear panel.
2. Set the Colour Mode Selector switch to COLOUR portion.
3. Connect a frequency counter to TP816 on the Video Playback Circuit Board (VEP0838B1), and place the unit in Stop mode.
4. Adjust 4.43MHz FREQ. (C8124) so that the indication of the frequency counter becomes 4.433619MHz ± 50Hz.

4-13. AFC Oscillator Adjustment

1. Do not supply any video signal to the Video Input on the rear panel.
2. Connect a frequency counter to TP814 on the Video Playback Circuit Board (VEP0838B1), and place the unit in Stop mode.
3. Supply +12V power source to TP813 on the same circuit board.
4. Connect a capacitor (47μF, 16V) between terminal (10) of IC807 and ground.
5. Adjust AFC FREQ. (R8129) so that the indication of frequency counter becomes 406.250kHz ± 0.4kHz.
6. After adjustment, remove the capacitor and +12V power source.

4-14. Mix Level Adjustment of Comb Filter

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Set the Dubbing Select switch to Rec portion.
3. Connect the scope to TP821 on the Video Playback Circuit Board (VEP0838B1), and place the unit in E-E mode.
4. Adjust MIX LEVEL (R8150) so that the "(a)" portion shown in Fig. 25 becomes minimum.

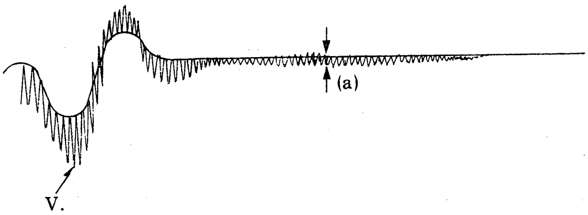

Fig. 25-a

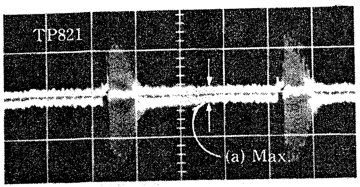

Fig. 25-b

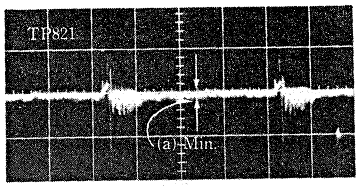

Fig. 25-c

4-15. Phase Adjustment of Comb Filter

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Set the Dubbing Selector switch to Rec portion.
3. Connect the scope to TP822 on the Video Playback Circuit Board (VEP0838B1), and place the unit in E-E mode.
4. Adjust COMB PHASE (T803) so that the burst level becomes equal shown in Fig. 26.

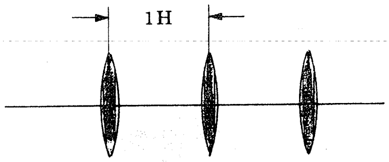

Fig. 26-a

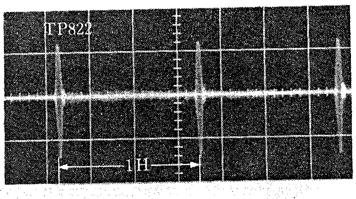

Fig. 26-b

4-16. APC Burst Level Adjustment

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Set the Dubbing Selector switch to Rec portion.
3. Connect the scope to TP822 on the Video Playback Circuit Board (VEP0838B1), and place the unit in E-E mode.
4. Adjust APC BURST LEVEL (R8166) so that the output voltage of TP822 waveform becomes 1.5Vp-p.

4-17. APC Oscillator Adjustment

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Set the Dubbing Selector switch to Rec portion.
3. Connect the monitor TV to the unit, and place the unit in E-E mode.
4. Adjust APC FREQ. (R8219) so that the pull-in range of APC volume on the left side operation plate becomes symmetry as shown in Fig. 27.

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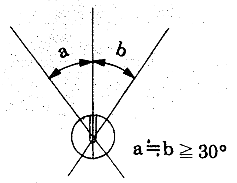

Fig. 27

4-18. Chroma Carrier Balance Adjustment

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Connect the scope to TP808 on the Video Playback Circuit Board (VEP0838B1), and place the unit in E-E mode.
3. Adjust CARRIER BAL (R8102) so that the noise in the no signal portions of the chroma signal becomes minimum as shown in Fig. 28.

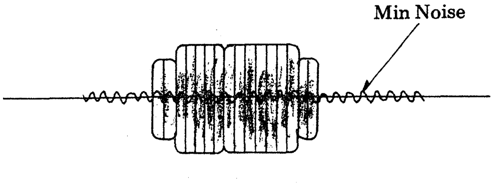

Fig. 28-a

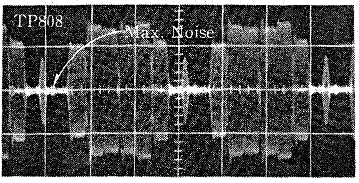
TP808
Max. Noise

Fig. 28-b

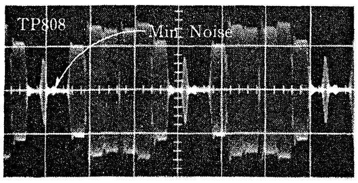
TP808
Min Noise

Fig. 28-c

4-19. Colour Killer Adjustment

1. Supply a PAL colour bar signal to the Video Input to the rear panel.
2. Set the Colour Mode Selector switch to Auto portion.
3. Connect the jumper wire between TP818 and ground.
4. Place the unit in E-E mode.
5. Turn KILLER LEVEL (R8179) counterclockwise gradually, and set it at point jast after the picture of TV monitor becomes from B/W mode to Colour mode.
6. After adjustment, remove the jumper wire.

4-20. Chroma Level Adjustment

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Connect the scope to TP823 on the Video Playback Circuit Board (VEP0838B1), and place the unit in E-E mode.
3. Adjust CHROMA LEVEL (R897) so that the maximum level of chroma signal (Cyan or Red portion) becomes 1.2Vp-p, as shown in Fig. 29.

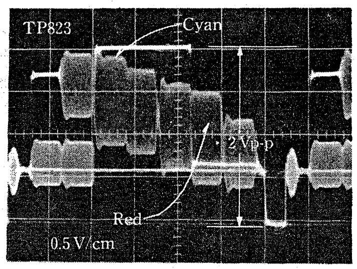
TP823
Cyan
2 Vp-p
Red
0.5 V/cm

Fig. 29

4-21. Noise Canceller Adjustment

1. Supply a PAL colour bar signal to the Video Input on the rear panel.
2. Connect the scope to TP823 on the Video Playback Circuit Board (VEP0838B1).
3. Place the unit in the Rec. mode, and make a recording.
4. Play back a recorded portion.
5. Adjust NOISE CANCELLER (R863) so that there is minimum noise, overshoot and undershoot (best response) at the sync pulse and white bar as shown in Fig. 30.

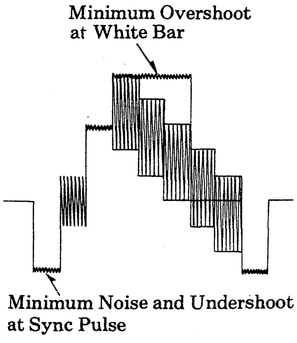
Minimum Overshoot at White Bar
Minimum Noise and Undershoot at Sync Pulse

Fig. 30-a

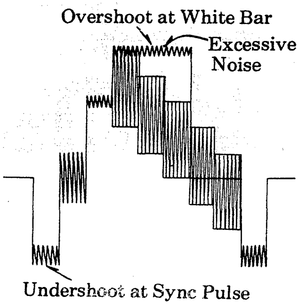
Overshoot at White Bar
Excessive Noise
Undershoot at Sync Pulse

Fig. 30-b

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5. *Head Amp Circuit*

5-1. Frequency Characteristics of 1st Stage Pre-Adjustment

1. Supply a sweep generator signal, 2mVp-p, (LINE Mode; at measured at no-load) to TP507 on the Head Amp Circuit Board (VEP0531A).
   Note: Line mode means that the sweep repeats at the AC line rate (50Hz) and there is no added sync to its output.
2. Connect the scope to TP506 on the same circuit board and place the unit in the REW or FF mode with tape running.
3. Fully turn Q Adj. (R503 and R518) clockwise.
4. Fully turn Q Adj (R543) counterclockwise.
5. Adjust Peak Adj. (C501 and C509) so that the peak frequency of the envelope becomes 5MHz for both channels as shown in Fig. 31-a.
6. Now adjust FM Mix (R540) so that the amplitude at the 1—2MHz portion becomes equal for both channels, within 1dB.

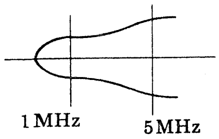

Fig. 31-a

7. Fully turn Q Adj. (R543) clockwise.
8. Turn Peak Adj (C521) so that the peak frequency becomes 5.5±0.5MHz as shown in Fig. 31-b.
9. At this time, make sure that the level ratio of of the 1MHz and 5MHz portions becomes 1 : 2.5 or more as shown in Fig. 31-c.

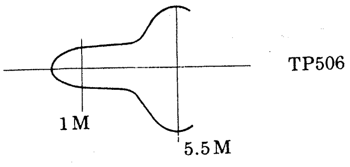

Fig. 31-b

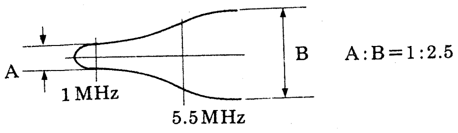

Fig. 31-c

5-2. Bias Trap Adjustment

1. Connect the scope to TP505 on the Head Amp Circuit Board (VEP0531A), and place the unit in the Stop mode.
2. Supply a 1kHz signal (−20dB) to CH2 Audio LINE IN on the rear panel.
3. Adjust L503 so that the bias leak of TR506 becomes minimum.

5-3. Overall Frequency Characteristic Adjustment

1. Connect the scope TP823 on the Video Playback Circuit Board (VEP0838B1).
2. Supply the sweep generator signal (vertical sync mode, (0.85Vp-p)) to the Video Input terminal on the real panel, and place the unit in Rec Play mode and make a recording.
3. Play back the recorded portion and observe the waveform. If there is a level imbalance between channels 1 and 2 in the Head Amp. Circuit, the waveform will flicker in the region of the imbalance.
4. Adjust Q Adj. (R503 or R518) on the Head Amp Circuit Board (VEP0531A) to eliminate any flicker in the waveform as shown in Fig. 32-a.

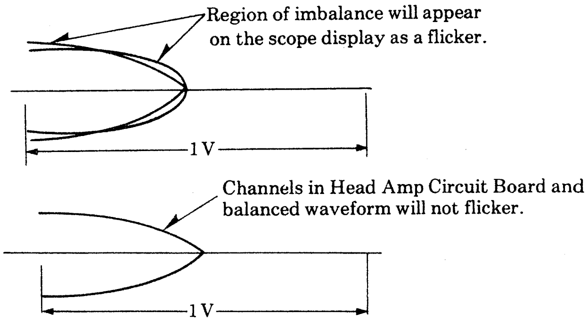
Region of imbalance will appear on the scope display as a flicker.
1V
Channels in Head Amp Circuit Board and balanced waveform will not flicker.
1V

Fig. 32-a

5. Adjust Q Adj. (R543) on the same circuit board so that the amplitude ratio of the 100kHz and 3.58MHz region of the waveform at TP823 on the Video Playback Circuit Board (VEP0838B1) is 100 : 50±5.

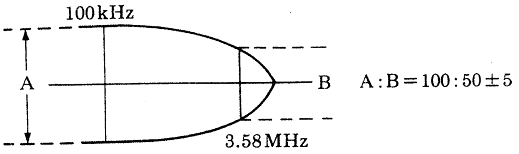

Fig. 32-b

5-4. Head Amp Output Balance Adjustment (FM and Chroma Mix Adjustment)

1. Connect the scope to TP506 on the Head Amp. Circuit Board (VEP0531A).
2. Play back the recorded reference tape, colour bar portion, (VMM2180D).
3. Adjust FM Mix (R540) so that the FM envelope is balanced, within 1dB.
4. Now connect the scope to TP807 on the Video Playabck Circuit Board (VEP0838B1).
5. Adjust Chroma Mix (R532) so that the chroma signal is also balanced, within 1dB.

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Printed in Japan

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ORDER NO. VRD-7804-295

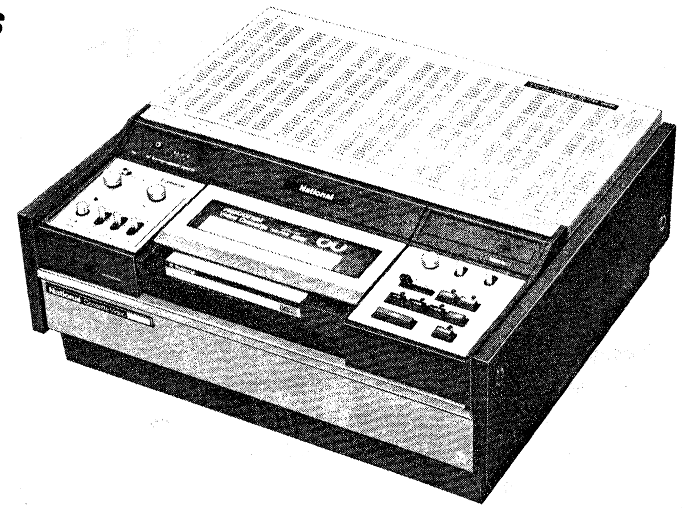
Service Manual

Video Cassette Recorder

NV-9210-E -A -B

Vol. 3

Schematic Diagrams



SPECIFICATIONS

Power Source:	110, 127, 220, 240 V AC, 50 Hz
Power Consumption:	Approx. 110 watts
Television System:	CCIR: 625 lines, 50 fields PAL/SECAM colour signal
Video Recording System:	2 rotary heads, helical scanning system Luminance: frequency modulation recording Colour signal: converted subcarrier, direct recording
Audio Track:	2 tracks
Tape Format:	Tape width 3/4 inch (19 mm), high density tape
Tape Speed:	95.3 mm/s
Record/Playback Time:	60 min. with NV-P26
FF/REW Time:	Less than 3 min. with NV-P26
Heads:	Video: 2 rotary heads Audio/Control: 1 stationary head Erase: 1 full track erase head 1 audio track erase head for audio dubbing
Input Level:	Video: TV Monitor connector (8 P) 1.0 Vp-p, 75 Ω unbalanced VIDEO IN connector (UHF) 1.0 Vp-p, 75 Ω unbalanced Audio: TV Monitor connector (8 P) 0 dB, 100 kΩ unbalanced MIC jack (PHONE) × 2 −72 dB, 600 Ω unbalanced LINE jack × 2 −20 dB, 100 kΩ unbalanced
Output Level:	Video: TV Monitor connector (8 P) 1.0 Vp-p, 75 Ω unbalanced VIDEO OUT connector (UHF) 1.0 Vp-p, 75 Ω unbalanced Audio: TV Monitor connector (8 P) 0 dB, 5 kΩ unbalanced LINE OUT jack × 2 −6 dB, 600 Ω unbalanced AUDIO MONITOR OUT jack 0 dB, 5 kΩ unbalanced HEADPHONE jack −32 dB, 8 Ω unbalanced RF Modulated: 73 dBμ (open voltage), 75 Ω unbalanced
Video Horizontal Resolution: (on monoscope test pattern)	Colour: better than 250 lines B/W: better than 350 lines
Audio Frequency Response:	50—15,000 Hz
Signal-to-Noise Ratio:	Video: better than 46 dB (Rohde & Schwarz noise meter) Audio: better than 45 dB
Audio Cross Talk:	Better than 40 dB
Operating Temperature:	5°C—40°C
Operating Humidity:	35%—80%
Weight:	30 kg
Dimensions:	540(W) × 472(D) × 238(H) mm
Standard Accessories:	1 pc. AC power cord 1 pc. VTR-Monitor connection cable, NV-C15 1 pc. Dust cover, VYC0020
Optional Accessories:	3/4″ video cassette tape: NV-P22 Approx. 129 m, 20 min. NV-P23 Approx. 186 m, 30 min. NV-P26 Approx. 358 m, 60 min. Head cleaning tape, NV-P20 Remote control unit, NV-A152-E RF Modulator: Plug-in/Internally Modulated European; RF Converter NV-U47A (UHF) RF Converter NV-U483S (VHF) RF Converter NV-U484S (VHF) Australian; RF Converter NV-480A (VHF) RF Converter NV-481A (VHF)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

(52) NV 9210

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Cassette Compartment Interconnection Circuit Board (VJB00138) 6-28
Loading Elevator Relay Interconnection Circuit Board (VEP00141A) 6-28
Brake Coil Interconnection Circuit Board (VJB00153) 6-28
Rec. Inhibit Interconnection Circuit Board (VJB00134) 6-28
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NV-9210 Interconnection Diagram 6-29

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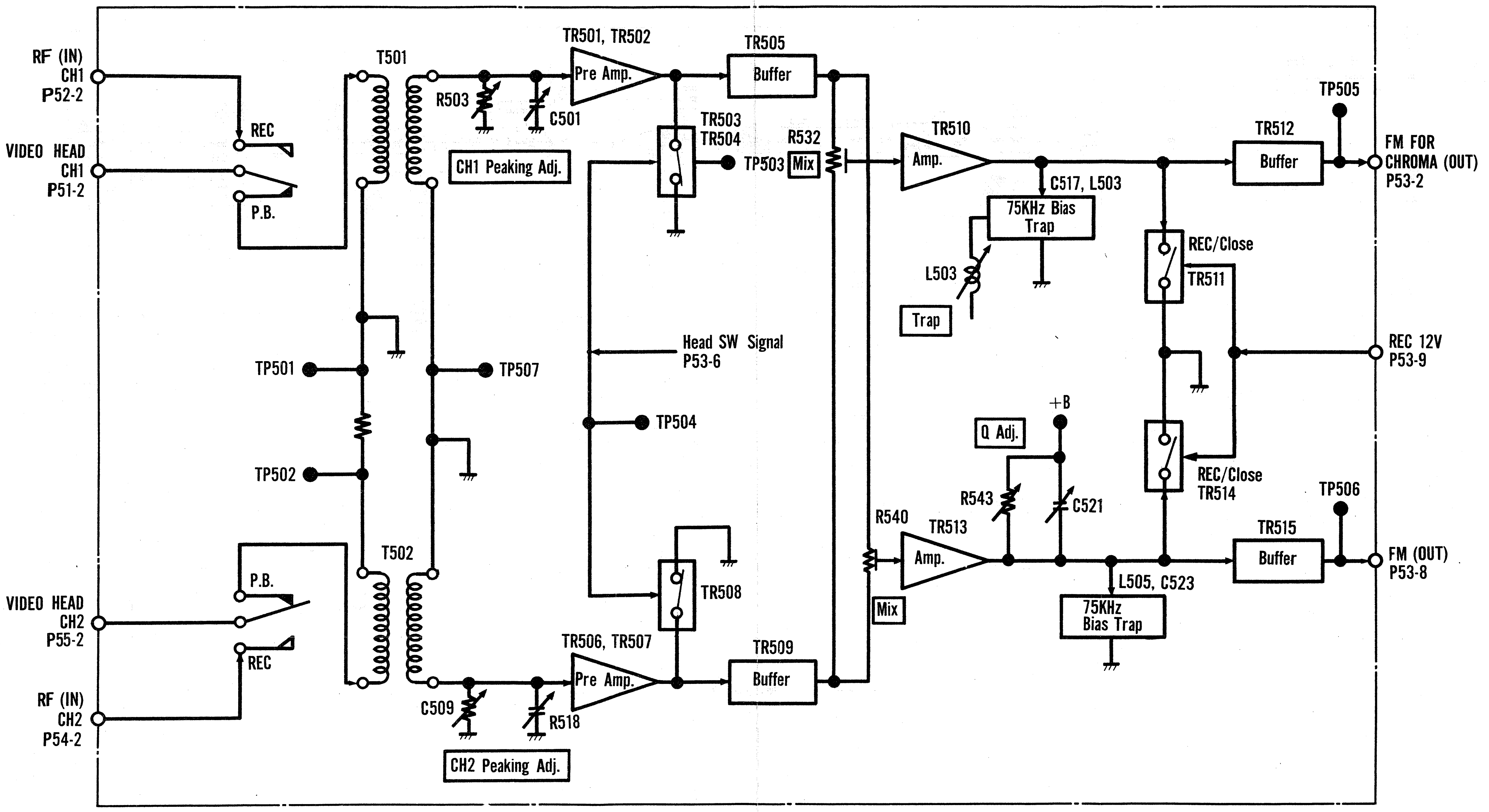
BLOCK DIAGRAM
HEAD AMP


RF (IN) CH1 P52-2
VIDEO HEAD CH1 P51-2
REC
P.B.
T501
R503
C501
CH1 Peaking Adj.
TR501, TR502
Pre Amp.
TR505
Buffer
TR503
TR504
TP503
R532
Mix
TR510
Amp.
C517, L503
75KHz Bias Trap
L503
Trap
TP505
TR512
Buffer
FM FOR CHROMA (OUT) P53-2
REC/Close
TR511
REC 12V P53-9
TP501
TP507
Head SW Signal P53-6
TP504
TP502
+B
Q Adj.
R543
C521
REC/Close
TR514
TP506
R540
TR513
Amp.
Mix
L505, C523
75KHz Bias Trap
TR515
Buffer
FM (OUT) P53-8
T502
P.B.
VIDEO HEAD CH2 P55-2
REC
RF (IN) CH2 P54-2
TR508
TR506, TR507
Pre Amp.
TR509
Buffer
C509
R518
CH2 Peaking Adj.

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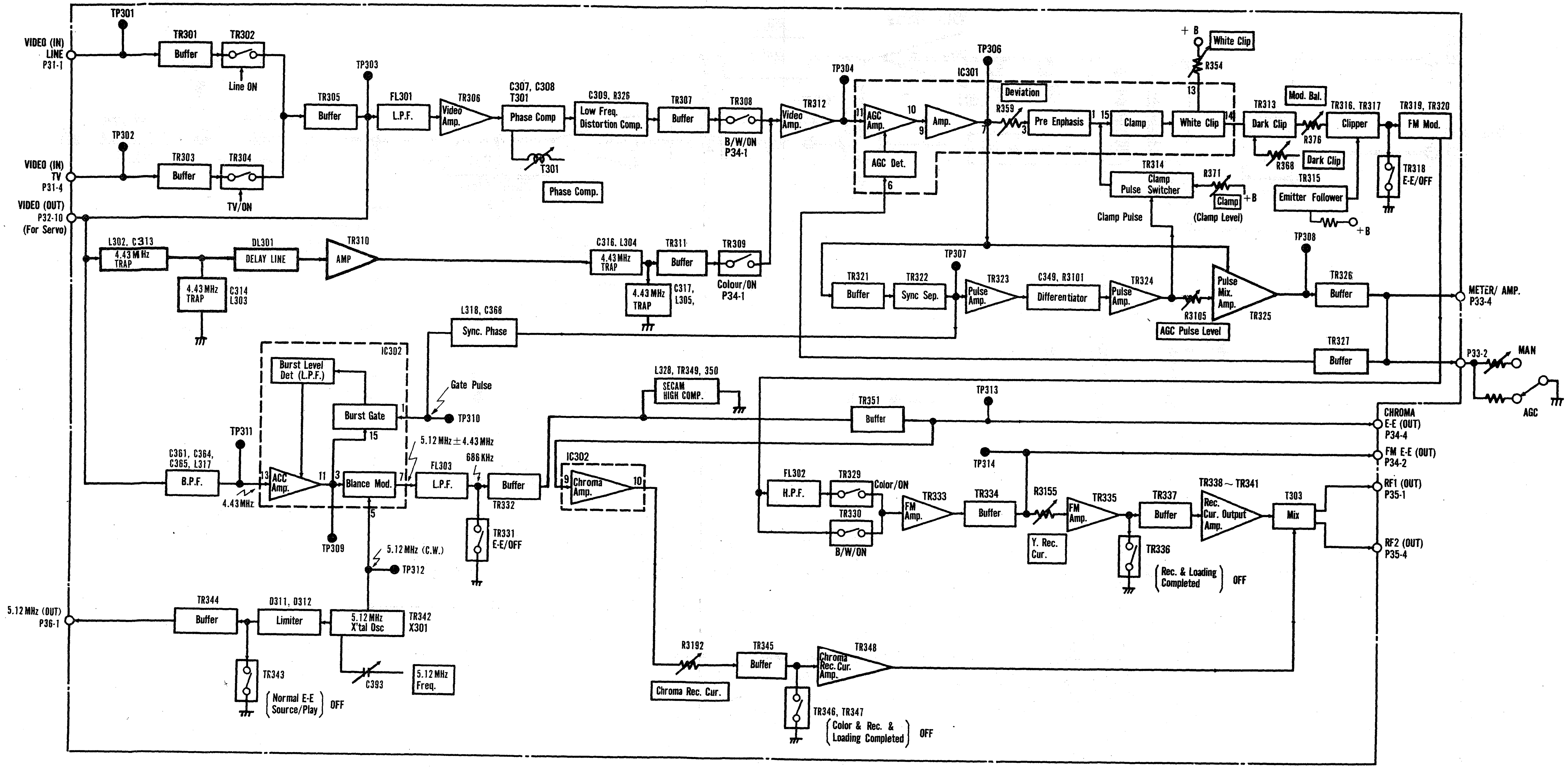
VIDEO RECORDING


VIDEO (IN) LINE P31-1
VIDEO (IN) TV P31-4
VIDEO (OUT) P32-10 (For Servo)
TP301
TP302
TP303
TR301 Buffer
TR302
Line ON
TR303 Buffer
TR304
TV/ON
TR305 Buffer
FL301 L.P.F.
TR306 Video Amp.
C307, C308 T301 Phase Comp
T301
Phase Comp.
C309, R326 Low Freq. Distortion Comp.
TR307 Buffer
TR308
B/W/ON P34-1
TR312 Video Amp.
TP304
TP306
IC301
AGC Amp.
Amp.
AGC Det.
Deviation
R359
Pre Enphasis
Clamp
White Clip
+B
White Clip
R354
TR313 Dark Clip
Mod. Bal.
R376
R368
Dark Clip
TR316, TR317 Clipper
TR319, TR320 FM Mod.
TR318 E-E/OFF
TR314 Clamp Pulse Switcher
R371
Clamp
(Clamp Level)
Clamp Pulse
TR315 Emitter Follower
+B
TP308
L302, C313 4.43 MHz TRAP
4.43 MHz TRAP C314 L303
DL301 DELAY LINE
TR310 AMP
C316, L304 4.43 MHz TRAP
4.43 MHz TRAP C317, L305,
TR311 Buffer
TR309
Colour/ON P34-1
TP307
TR321 Buffer
TR322 Sync Sep.
TR323 Pulse Amp.
C349, R3101 Differentiator
TR324 Pulse Amp.
R3105
AGC Pulse Level
TR325 Pulse Mix. Amp.
TR326 Buffer
METER/ AMP. P33-4
TR327 Buffer
P33-2
MAN
AGC
L318, C368 Sync. Phase
IC302
Burst Level Det (L.P.F.)
Burst Gate
Gate Pulse
TP310
TP311
C361, C364, C365, L317 B.P.F.
4.43 MHz
ACC Amp.
Blance Mod.
TP309
5.12 MHz ± 4.43 MHz
FL303 L.P.F.
686 KHz
Buffer
TR332
TR331 E-E/OFF
5.12 MHz (C.W.)
TP312
L328, TR349, 350 SECAM HIGH COMP.
TR351 Buffer
TP313
CHROMA E-E (OUT) P34-4
FM E-E (OUT) P34-2
TP314
IC302 Chroma Amp.
FL302 H.P.F.
TR329 Color/ON
TR330 B/W/ON
TR333 FM Amp.
TR334 Buffer
R3155
Y. Rec. Cur.
TR335 FM Amp.
TR336
(Rec. & Loading Completed) OFF
TR337 Buffer
TR338 ~ TR341 Rec. Cur. Output Amp.
T303 Mix
RF1 (OUT) P35-1
RF2 (OUT) P35-4
5.12 MHz (OUT) P36-1
TR344 Buffer
D311, D312 Limiter
5.12 MHz X'tal Osc
TR342 X301
C393
5.12 MHz Freq.
TR343
(Normal E-E Source/Play) OFF
R3192
Chroma Rec. Cur.
TR345 Buffer
TR348 Chroma Rec. Cur. Amp.
TR346, TR347
(Color & Rec. & Loading Completed) OFF

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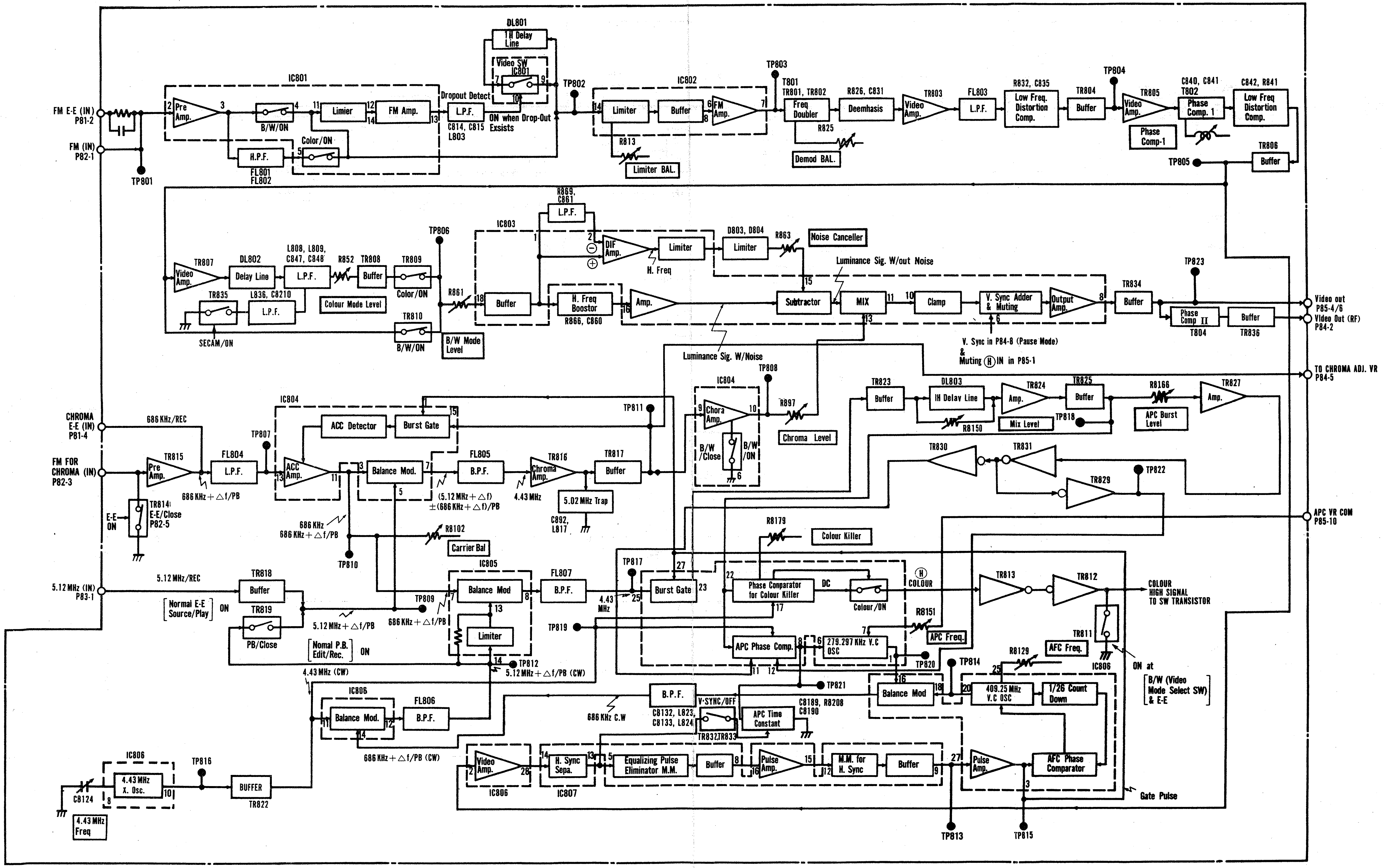
VIDEO PLAYBACK


FM E-E (IN) P81-2
FM (IN) P82-1
TP801
IC801
Pre Amp.
B/W/ON
Limier
FM Amp.
H.P.F.
FL801 FL802
Color/ON
DL801
1H Delay Line
Video SW IC801
Dropout Detect
L.P.F.
C814, C815 L803
ON when Drop-Out Exsists
TP802
IC802
Limiter
Buffer
FM Amp.
R813
Limiter BAL.
TP803
T801 TR801, TR802
Freq Doubler
R825
Demod BAL.
R826, C831
Deemhasis
TR803
Video Amp.
FL803
L.P.F.
R832, C835
Low Freq. Distortion Comp.
TR804
Buffer
TP804
TR805
Video Amp.
C840, C841 T802
Phase Comp. 1
Phase Comp-1
C842, R841
Low Freq Distortion Comp.
TR806
Buffer
TP805
TR807
Video Amp.
DL802
Delay Line
L808, L809, C847, C848
L.P.F.
R852
TR808
Buffer
TR809
Color/ON
TR835
L836, C8210
L.P.F.
Colour Mode Level
SECAM/ON
TR810
B/W/ON
B/W Mode Level
TP806
R861
IC803
Buffer
R869, C861
L.P.F.
DIF Amp.
H. Freq
Limiter
D803, D804
Limiter
R863
Noise Canceller
H. Freq Boostor
R866, C860
Amp.
Luminance Sig. W/out Noise
Subtractor
MIX
Clamp
V. Sync Adder & Muting
Output Amp.
Luminance Sig. W/Noise
V. Sync in P84-8 (Pause Mode) & Muting (H) IN in P85-1
TR834
Buffer
TP823
Phase Comp II
T804
Buffer
TR836
Video out P85-4/6
Video Out (RF) P84-2
TO CHROMA ADJ. VR P84-5
CHROMA E-E (IN) P81-4
686 KHz/REC
FM FOR CHROMA (IN) P82-3
TR815
Pre Amp.
686 KHz + △f/PB
TR814
E-E/Close P82-5
E-E ON
FL804
L.P.F.
TP807
IC804
ACC Detector
Burst Gate
ACC Amp.
Balance Mod.
686 KHz 686 KHz + △f/PB
TP810
R8102
Carrier Bal
FL805
B.P.F.
(5.12 MHz + △f) ±(686 KHz + △f)/PB
TR816
Chroma Amp.
4.43 MHz
5.02 MHz Trap
C892, L817
TR817
Buffer
TP811
IC804
Chora Amp.
B/W /Close
B/W /ON
TP808
R897
Chroma Level
TR823
Buffer
DL803
1H Delay Line
R8150
TR824
Amp.
Mix Level
TR825
Buffer
TP818
R8166
APC Burst Level
TR827
Amp.
TR830
TR831
TR829
TP822
APC VR COM P85-10
R8179
Colour Killer
5.12 MHz (IN) P83-1
5.12 MHz/REC
TR818
Buffer
Normal E-E Source/Play ON
TR819
PB/Close
5.12 MHz + △f/PB
Nomal P.B. Edit/Rec. ON
TP809
686 KHz + △f/PB
IC805
Balance Mod
Limiter
TP812
5.12 MHz + △f/PB (CW)
FL807
B.P.F.
4.43 MHz
TP817
Burst Gate
TP819
Phase Comparator for Colour Killer
DC
Colour/ON
(H) COLOUR
TR813
TR812
COLOUR HIGH SIGNAL TO SW TRANSISTOR
APC Phase Comp.
279.297 KHz V.C OSC
R8151
APC Freq.
TP820
R8129
AFC Freq.
TR811
IC806
ON at [B/W (Video Mode Select SW) & E-E]
TP814
TP821
Balance Mod
409.25 MHz V.C OSC
1/26 Count Down
4.43 MHz (CW)
IC806
Balance Mod.
FL806
B.P.F.
686 KHz + △f/PB (CW)
B.P.F.
686 KHz C.W
C8132, L823, C8133, L824
V-SYNC/OFF
TR832,TR833
APC Time Constant
C8189, R8208 C8190
Video Amp.
IC806
H. Sync Sepa.
IC807
Equalizing Pulse Eliminator M.M.
Buffer
Pulse Amp.
M.M. for H. Sync
Buffer
Pulse Amp.
AFC Phase Comparator
Gate Pulse
TP813
TP815
IC806
4.43 MHz X. Osc.
C8124
4.43 MHz Freq
TP816
BUFFER
TR822

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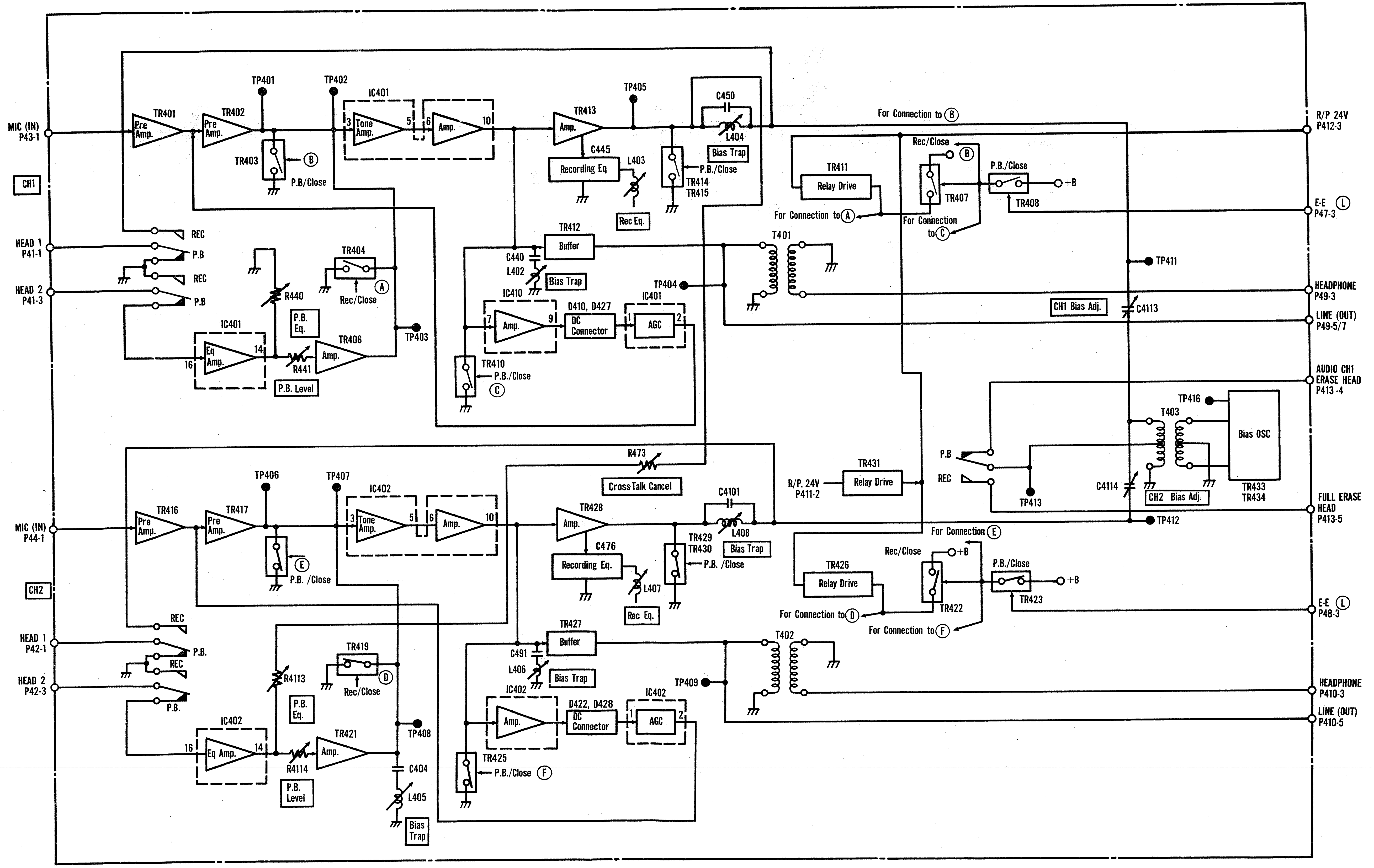
AUDIO


MIC (IN)
P43-1
CH1
HEAD 1
P41-1
HEAD 2
P41-3
REC
P.B
REC
P.B
TR401
Pre Amp.
TR402
Pre Amp.
TP401
TP402
IC401
3
Tone Amp.
5
6
Amp.
10
TR403
Ⓑ
P.B./Close
TR413
Amp.
TP405
C450
L404
Bias Trap
C445
Recording Eq
L403
Rec Eq.
P.B./Close
TR414
TR415
For Connection to Ⓑ
R/P 24V
P412-3
Rec/Close
Ⓑ
TR411
Relay Drive
P.B./Close
TR407
TR408
+B
For Connection to Ⓐ
For Connection to Ⓒ
E-E Ⓛ
P47-3
TR404
Rec/Close Ⓐ
R440
P.B. Eq.
IC401
Eq Amp.
16
14
R441
P.B. Level
TR406
Amp.
TP403
TR412
Buffer
C440
L402
Bias Trap
IC410
7
Amp.
9
D410, D427
DC Connector
TP404
IC401
1
AGC
2
TR410
P.B./Close
Ⓒ
T401
TP411
HEADPHONE
P49-3
CH1 Bias Adj.
C4113
LINE (OUT)
P49-5/7
AUDIO CH1
ERASE HEAD
P413-4
TP416
T403
Bias OSC
P.B
REC
TP413
C4114
CH2 Bias Adj.
TR433
TR434
FULL ERASE
HEAD
P413-5
TP412
R473
Cross Talk Cancel
TR431
Relay Drive
R/P. 24V
P411-2
MIC (IN)
P44-1
CH2
HEAD 1
P42-1
HEAD 2
P42-3
REC
P.B.
REC
P.B.
TR416
Pre Amp.
TR417
Pre Amp.
TP406
TP407
IC402
3
Tone Amp.
5
6
Amp.
10
Ⓔ
P.B. /Close
TR428
Amp.
C4101
L408
Bias Trap
C476
Recording Eq.
L407
Rec Eq.
TR429
TR430
P.B. /Close
For Connection Ⓔ
Rec/Close
+B
TR426
Relay Drive
P.B./Close
TR422
TR423
+B
For Connection to Ⓓ
For Connection to Ⓕ
E-E Ⓛ
P48-3
R4113
P.B. Eq.
TR419
Rec/Close
Ⓓ
IC402
16
Eq Amp.
14
R4114
P.B. Level
TR421
Amp.
TP408
C404
L405
Bias Trap
TR427
Buffer
C491
L406
Bias Trap
IC402
Amp.
D422, D428
DC Connector
IC402
1
AGC
2
TP409
TR425
P.B./Close Ⓕ
T402
HEADPHONE
P410-3
LINE (OUT)
P410-5

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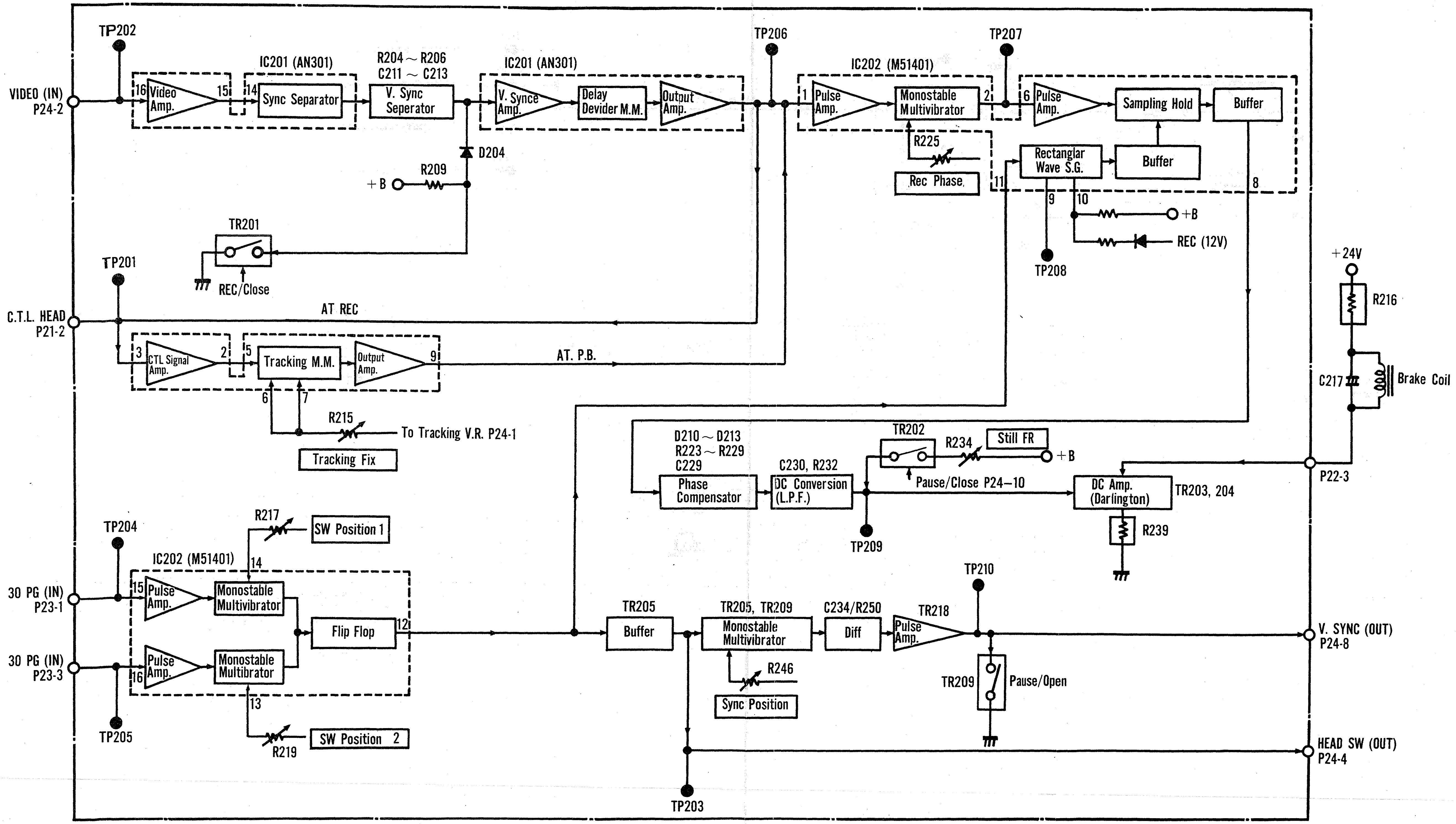
SERVO CONTROL



TP202
IC201 (AN301)
R204 ~ R206
C211 ~ C213
IC201 (AN301)
TP206
TP207
IC202 (M51401)
VIDEO (IN)
P24-2
16
Video Amp.
15
14
Sync Separator
V. Sync Seperator
V. Synce Amp.
Delay Devider M.M.
Output Amp.
1
Pulse Amp.
Monostable Multivibrator
2
6
Pulse Amp.
Sampling Hold
Buffer
R225
Rec Phase.
Rectanglar Wave S.G.
Buffer
11
9
10
8
D204
+B
R209
+B
REC (12V)
TP208
TR201
REC/Close
TP201
+24V
R216
C.T.L. HEAD
P21-2
AT REC
3
CTL Signal Amp.
2
5
Tracking M.M.
Output Amp.
9
AT. P.B.
C217
Brake Coil
6
7
R215
To Tracking V.R. P24-1
Tracking Fix
D210 ~ D213
R223 ~ R229
C229
C230, R232
TR202
R234
Still FR
+B
Phase Compensator
DC Conversion (L.P.F.)
Pause/Close P24-10
DC Amp. (Darlington)
TR203, 204
P22-3
R239
TP209
TP204
R217
SW Position 1
IC202 (M51401)
14
TP210
15
Pulse Amp.
Monostable Multivibrator
Flip Flop
12
TR205
Buffer
TR205, TR209
Monostable Multivibrator
C234/R250
Diff
TR218
Pulse Amp.
V. SYNC (OUT)
P24-8
30 PG (IN)
P23-1
30 PG (IN)
P23-3
16
Pulse Amp.
Monostable Multibrator
R246
Sync Position
TR209
Pause/Open
13
TP205
SW Position 2
R219
HEAD SW (OUT)
P24-4
TP203

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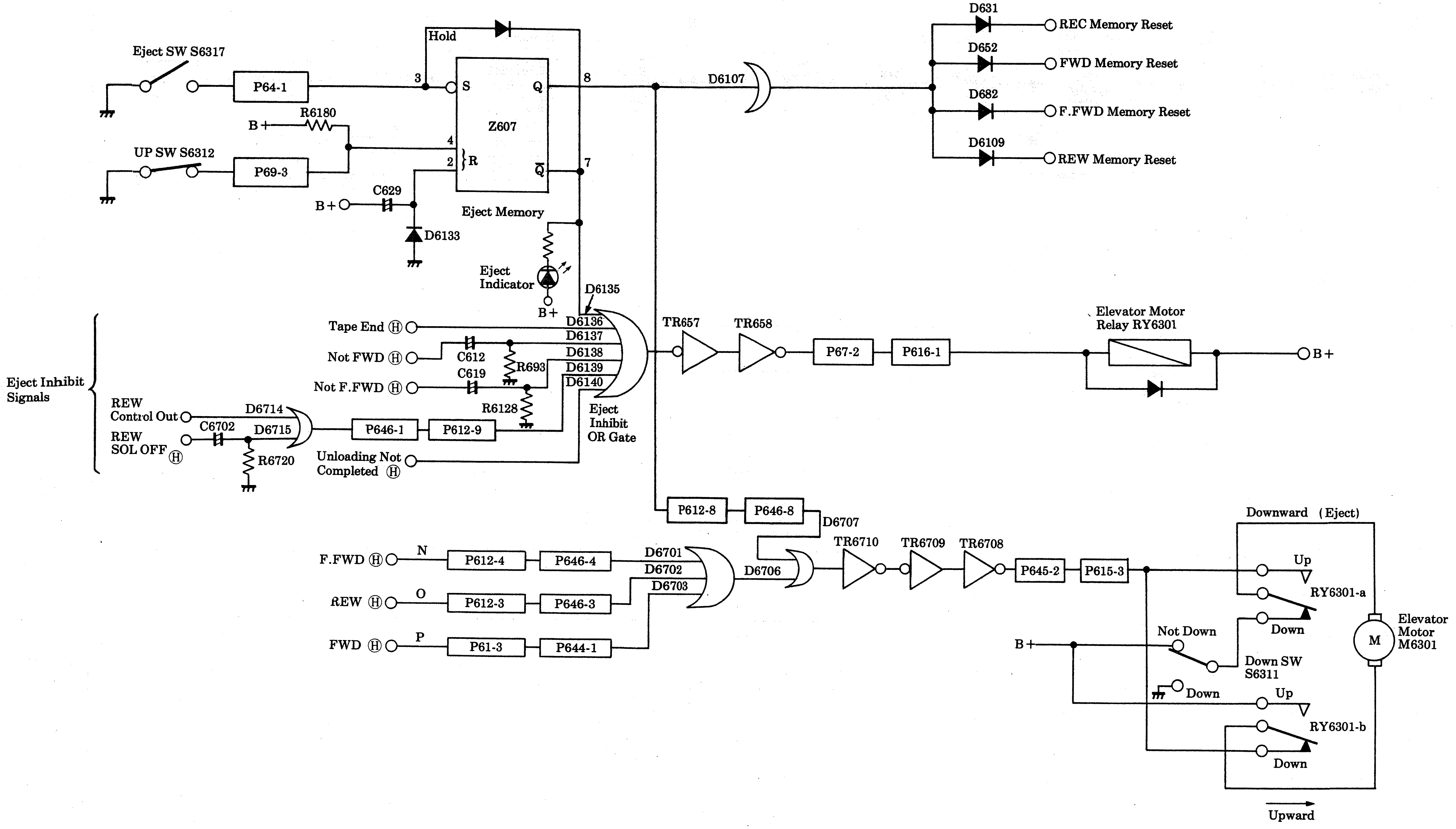
TRANSPORT CONTROL

Cassette Elevator and Eject Controls



Eject SW S6317
P64-1
Hold
3
S
Q
8
Z607
B+
R6180
4
UP SW S6312
P69-3
2
R
Q̄
7
C629
B+
Eject Memory
D6133
Eject Indicator
B+
D6135
D6107
D631
REC Memory Reset
D652
FWD Memory Reset
D682
F.FWD Memory Reset
D6109
REW Memory Reset
Tape End Ⓗ
D6136
D6137
Not FWD Ⓗ
C612
R693
D6138
C619
Not F.FWD Ⓗ
D6139
D6140
Eject Inhibit Signals
REW Control Out
D6714
C6702
D6715
REW SOL OFF Ⓗ
R6720
R6128
P646-1
P612-9
Unloading Not Completed Ⓗ
Eject Inhibit OR Gate
TR657
TR658
P67-2
P616-1
Elevator Motor Relay RY6301
B+
P612-8
P646-8
D6707
F.FWD Ⓗ
N
P612-4
P646-4
D6701
D6702
D6703
REW Ⓗ
O
P612-3
P646-3
FWD Ⓗ
P
P61-3
P644-1
D6706
TR6710
TR6709
TR6708
P645-2
P615-3
Downward (Eject)
Up
RY6301-a
Down
Not Down
Down SW S6311
B+
Down
Up
RY6301-b
Down
Elevator Motor M6301
M
Upward

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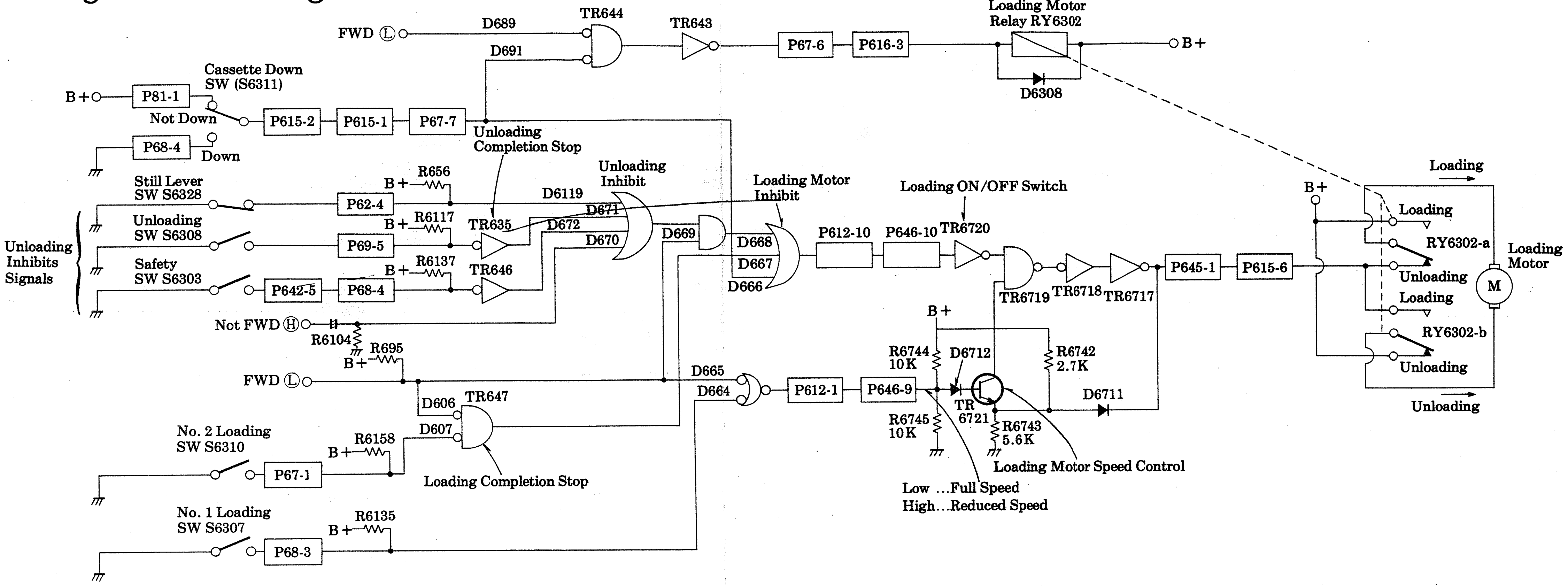
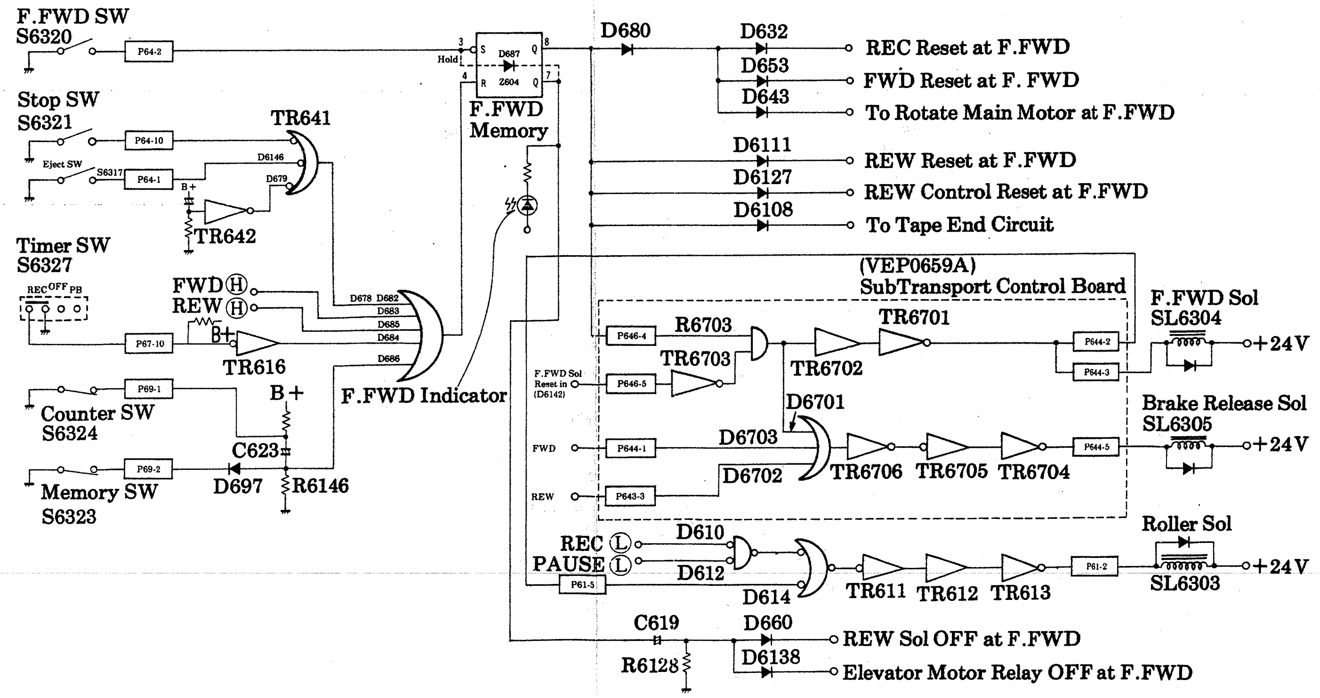
Tape Loading and Unloading


FWD Ⓛ
D689
D691
TR644
TR643
P67-6
P616-3
Loading Motor Relay RY6302
B+
D6308
Cassette Down SW (S6311)
B+
P81-1
Not Down
P615-2
P615-1
P67-7
P68-4
Down
Unloading Completion Stop
Unloading Inhibit
Loading Motor Inhibit
Loading ON/OFF Switch
Still Lever SW S6328
Unloading SW S6308
Safety SW S6303
Unloading Inhibits Signals
P62-4
P69-5
P642-5
P68-4
B+ R656
B+ R6117
B+ R6137
TR635
TR646
D6119
D671
D672
D670
D669
D668
D667
D666
P612-10
P646-10
TR6720
TR6719
TR6718
TR6717
P645-1
P615-6
Not FWD Ⓗ
R6104
R695
B+
FWD Ⓛ
D606
D607
TR647
D665
D664
P612-1
P646-9
B+
R6744 10K
D6712
R6742 2.7K
TR 6721
R6745 10K
R6743 5.6K
D6711
Loading Motor Speed Control
Low …Full Speed
High…Reduced Speed
No. 2 Loading SW S6310
B+ R6158
P67-1
Loading Completion Stop
No. 1 Loading SW S6307
B+ R6135
P68-3
Loading
B+
Loading
RY6302-a
Unloading
Loading
RY6302-b
Unloading
Unloading
Loading Motor
M

Fast Forward


F.FWD SW S6320
P64-2
Hold
D687
Z604
F.FWD Memory
D680
D632
D653
D643
REC Reset at F.FWD
FWD Reset at F. FWD
To Rotate Main Motor at F.FWD
D6111
D6127
D6108
REW Reset at F.FWD
REW Control Reset at F.FWD
To Tape End Circuit
Stop SW S6321
P64-10
Eject SW
S6317
P64-1
TR641
D6146
D679
B+
TR642
Timer SW S6327
REC OFF PB
P67-10
FWD Ⓗ
REW Ⓗ
B+
TR616
D678
D682
D683
D685
D684
D686
F.FWD Indicator
Counter SW S6324
P69-1
B+
C623
Memory SW S6323
P69-2
D697
R6146
(VEP0659A) SubTransport Control Board
P646-4
R6703
TR6703
TR6701
TR6702
F.FWD Sol Reset in (D6142)
P646-5
D6701
FWD
P644-1
D6703
D6702
TR6706
TR6705
TR6704
REW
P643-3
P644-2
P644-3
P644-5
F.FWD Sol SL6304
+24V
Brake Release Sol SL6305
+24V
REC Ⓛ
PAUSE Ⓛ
P61-5
D610
D612
D614
TR611
TR612
TR613
P61-2
Roller Sol
SL6303
+24V
C619
R6128
D660
D6138
REW Sol OFF at F.FWD
Elevator Motor Relay OFF at F.FWD

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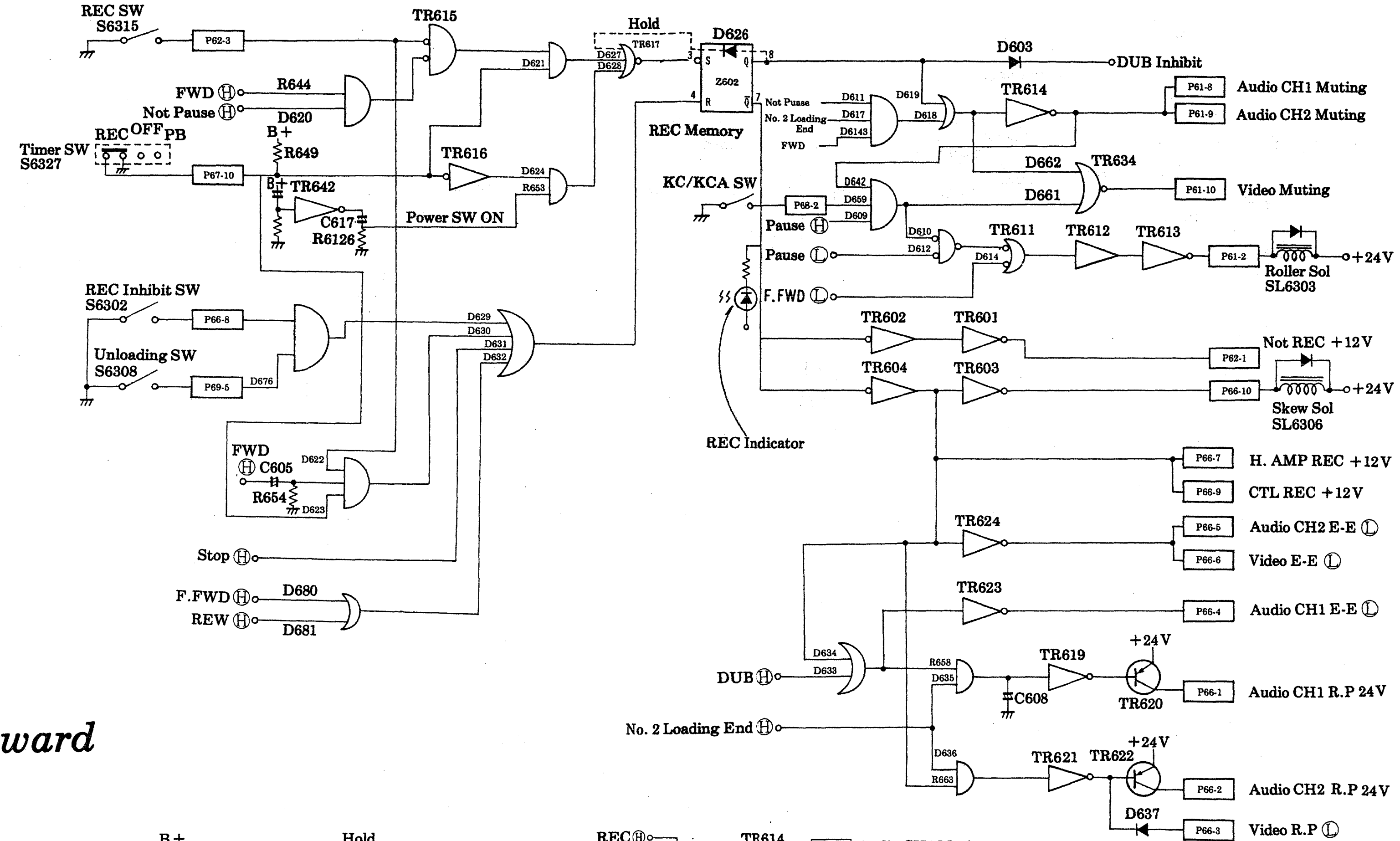
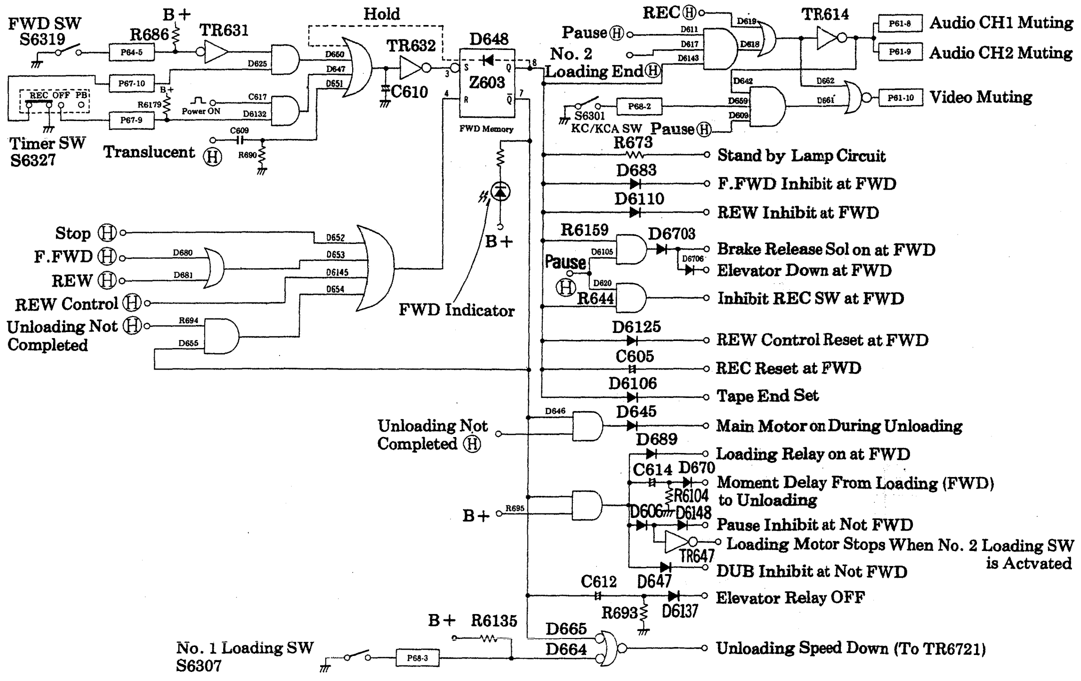
Recording



REC SW
S6315
P62-3
TR615
Hold
TR617
D627
D628
D626
Z602
S
R
Q
8
4
7
D603
DUB Inhibit
D621
FWD Ⓗ
R644
Not Pause Ⓗ
D620
B+
R649
Timer SW
S6327
REC OFF PB
P67-10
TR616
D624
R653
TR642
C617
R6126
Power SW ON
REC Memory
Not Pause
No. 2 Loading End
FWD
D611
D617
D6143
D619
D618
TR614
P61-8
P61-9
Audio CH1 Muting
Audio CH2 Muting
D662
TR634
D661
P61-10
Video Muting
KC/KCA SW
P68-2
D642
D659
D609
Pause Ⓗ
Pause Ⓛ
D610
D612
D614
TR611
TR612
TR613
P61-2
Roller Sol
SL6303
+24V
F.FWD Ⓛ
REC Inhibit SW
S6302
P66-8
D629
D630
D631
D632
Unloading SW
S6308
P69-5
D676
TR602
TR601
P62-1
Not REC +12V
TR604
TR603
P66-10
Skew Sol
SL6306
+24V
REC Indicator
FWD
Ⓗ C605
D622
R654
D623
P66-7
H. AMP REC +12V
P66-9
CTL REC +12V
TR624
P66-5
Audio CH2 E-E Ⓛ
P66-6
Video E-E Ⓛ
Stop Ⓗ
F.FWD Ⓗ
D680
REW Ⓗ
D681
TR623
P66-4
Audio CH1 E-E Ⓛ
DUB Ⓗ
D634
D633
R658
D635
C608
TR619
+24V
TR620
P66-1
Audio CH1 R.P 24V
No. 2 Loading End Ⓗ
D636
R663
TR621
TR622
+24V
D637
P66-2
Audio CH2 R.P 24V
P66-3
Video R.P Ⓛ

Forward



FWD SW
S6319
B+
R686
TR631
P64-5
D625
P67-10
P67-9
Power ON
C617
D6132
R6179
Timer SW
S6327
REC OFF PB
Translucent Ⓗ
C609
R690
Hold
D650
D647
D651
TR632
C610
D648
Z603
S
R
Q
4
7
8
FWD Memory
No. 2
Loading End Ⓗ
REC Ⓗ
Pause Ⓗ
D611
D617
D6143
D619
D618
TR614
P61-8
P61-9
Audio CH1 Muting
Audio CH2 Muting
D642
D659
D609
D662
D661
P61-10
Video Muting
S6301
KC/KCA SW
P68-2
Pause Ⓗ
R673
Stand by Lamp Circuit
D683
F.FWD Inhibit at FWD
D6110
REW Inhibit at FWD
B+
FWD Indicator
Stop Ⓗ
F.FWD Ⓗ
REW Ⓗ
REW Control Ⓗ
Unloading Not Ⓗ
Completed
D680
D681
D652
D653
D6145
D654
R694
D655
R6159
D6703
D6105
D6706
Brake Release Sol on at FWD
Elevator Down at FWD
Pause Ⓗ
D620
R644
Inhibit REC SW at FWD
D6125
REW Control Reset at FWD
C605
REC Reset at FWD
D6106
Tape End Set
Unloading Not
Completed Ⓗ
D646
D645
Main Motor on During Unloading
D689
Loading Relay on at FWD
C614
D670
Moment Delay From Loading (FWD) to Unloading
R6104
B+
R695
D606
D6148
Pause Inhibit at Not FWD
Loading Motor Stops When No. 2 Loading SW is Actvated
TR647
DUB Inhibit at Not FWD
C612
D647
Elevator Relay OFF
R693
D6137
B+
R6135
D665
D664
No. 1 Loading SW
S6307
P68-3
Unloading Speed Down (To TR6721)

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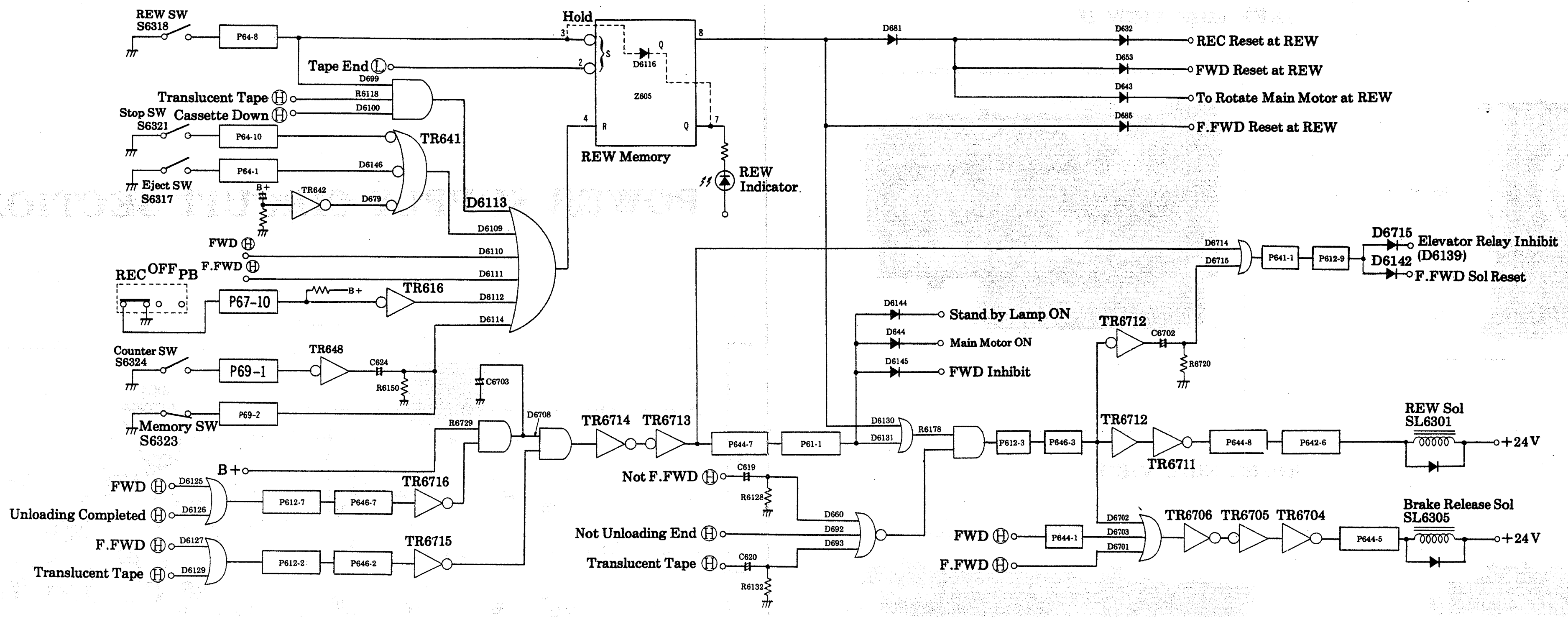
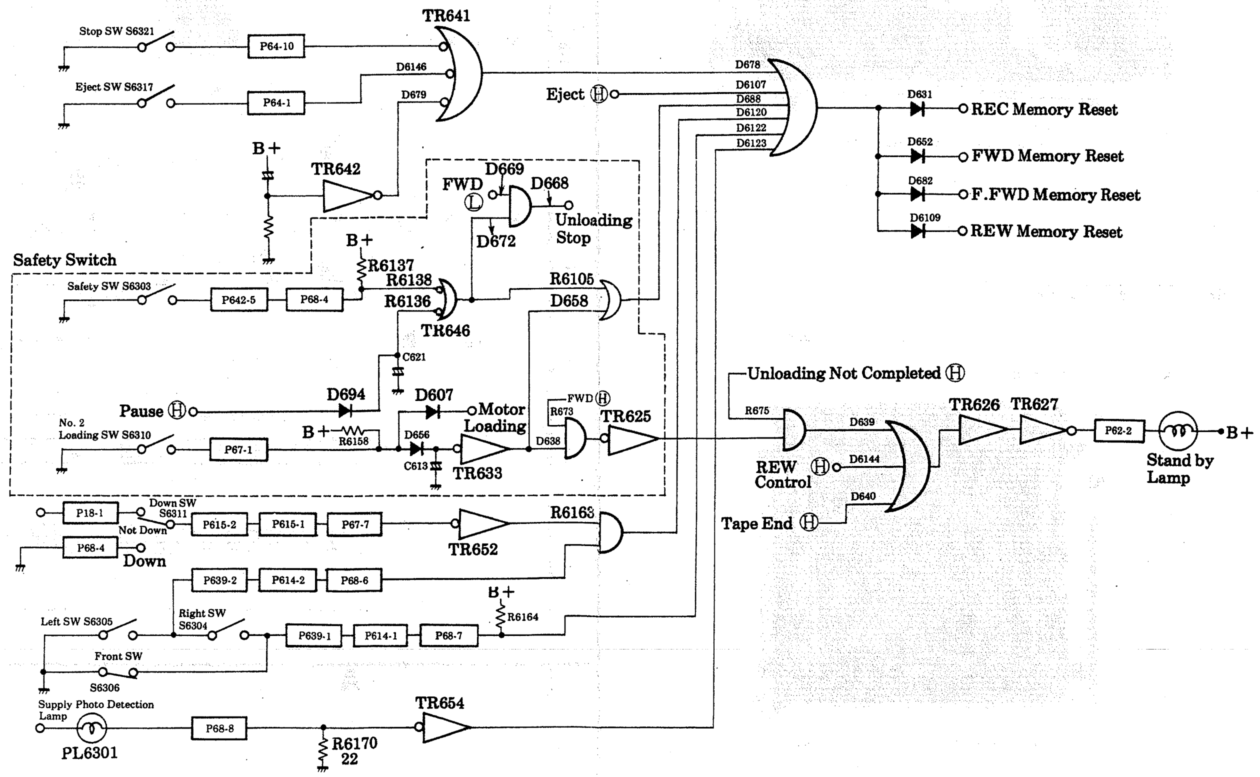
Rewind


REW SW S6318
P64-8
Hold
Tape End Ⓛ
D699
Translucent Tape Ⓗ
R6118
Stop SW S6321
Cassette Down Ⓗ
D6100
P64-10
TR641
P64-1
Eject SW S6317
D6146
B+
TR642
D679
D6113
FWD Ⓗ
F.FWD Ⓗ
REC OFF PB
P67-10
TR616
D6109
D6110
D6111
D6112
D6114
Counter SW S6324
P69-1
TR648
C624
R6150
Memory SW S6323
P69-2
C6703
R6729
D6708
S
D6116
Q
Z605
R
REW Memory
REW Indicator
D681
D632
REC Reset at REW
D653
FWD Reset at REW
D643
To Rotate Main Motor at REW
D685
F.FWD Reset at REW
D6714
D6715
P641-1
P612-9
D6715
D6142
Elevator Relay Inhibit (D6139)
F.FWD Sol Reset
D6144
Stand by Lamp ON
D644
Main Motor ON
D6145
FWD Inhibit
TR6712
C6702
R6720
TR6714
TR6713
P644-7
P61-1
D6130
D6131
R6178
P612-3
P646-3
TR6712
TR6711
P644-8
P642-6
REW Sol SL6301
+24V
B+
FWD Ⓗ
D6125
D6126
Unloading Completed Ⓗ
P612-7
P646-7
TR6716
F.FWD Ⓗ
D6127
Translucent Tape Ⓗ
D6129
P612-2
P646-2
TR6715
Not F.FWD Ⓗ
C619
R6128
Not Unloading End Ⓗ
D660
D692
D693
Translucent Tape Ⓗ
C620
R6132
FWD Ⓗ
P644-1
D6702
D6703
D6701
F.FWD Ⓗ
TR6706
TR6705
TR6704
P644-5
Brake Release Sol SL6305
+24V

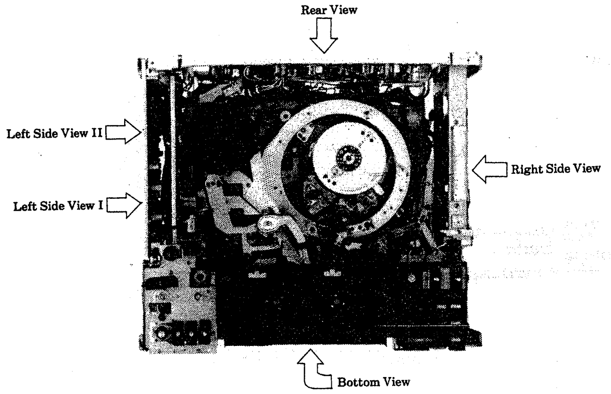
Stop


TR641
Stop SW S6321
P64-10
D6146
Eject SW S6317
P64-1
D679
B+
TR642
D669
FWD Ⓛ
D668
Unloading Stop
D672
Safety Switch
B+
R6137
R6138
R6136
TR646
Safety SW S6303
P642-5
P68-4
R6105
D658
C621
Pause Ⓗ
D694
D607
Motor Loading
No. 2 Loading SW S6310
P67-1
B+
R6158
D656
C613
TR633
FWD Ⓗ
R673
D638
TR625
Eject Ⓗ
D678
D6107
D688
D6120
D6122
D6123
D631
REC Memory Reset
D652
FWD Memory Reset
D682
F.FWD Memory Reset
D6109
REW Memory Reset
Unloading Not Completed Ⓗ
R675
D639
REW Control Ⓗ
D6144
D640
Tape End Ⓗ
TR626
TR627
P62-2
B+
Stand by Lamp
P18-1
Down SW S6311
Not Down
P615-2
P615-1
P67-7
P68-4
Down
TR652
R6163
P639-2
P614-2
P68-6
B+
R6164
Left SW S6305
Right SW S6304
P639-1
P614-1
P68-7
Front SW S6306
Supply Photo Detection Lamp
PL6301
P68-8
R6170 22
TR654

NV9210 (62)

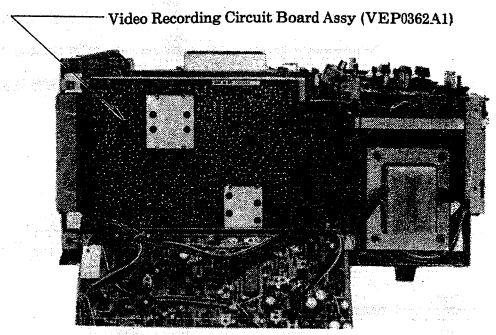
CIRCUIT BOARD LAYOUT

TOP VIEW



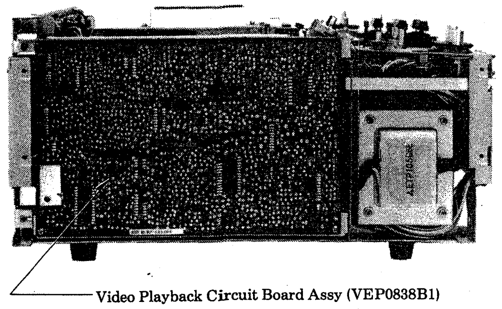
Rear View
Left Side View II
Left Side View I
Right Side View
Bottom View

LEFT SIDE VIEW II



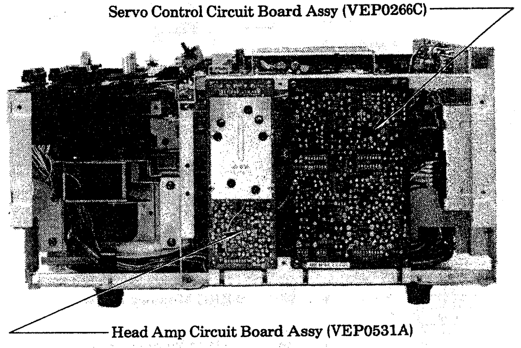
Video Recording Circuit Board Assy (VEP0362A1)

LEFT SIDE VIEW I



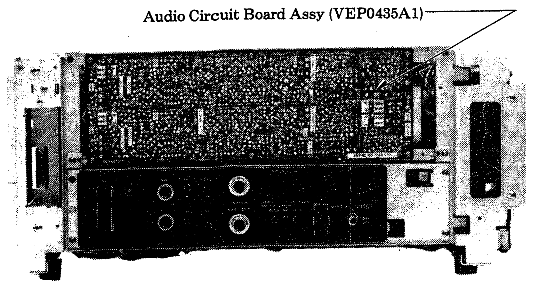
Video Playback Circuit Board Assy (VEP0838B1)

RIGHT SIDE VIEW



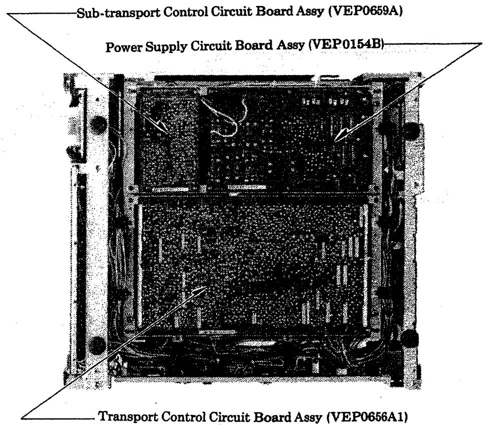
Servo Control Circuit Board Assy (VEP0266C)
Head Amp Circuit Board Assy (VEP0531A)

REAR VIEW



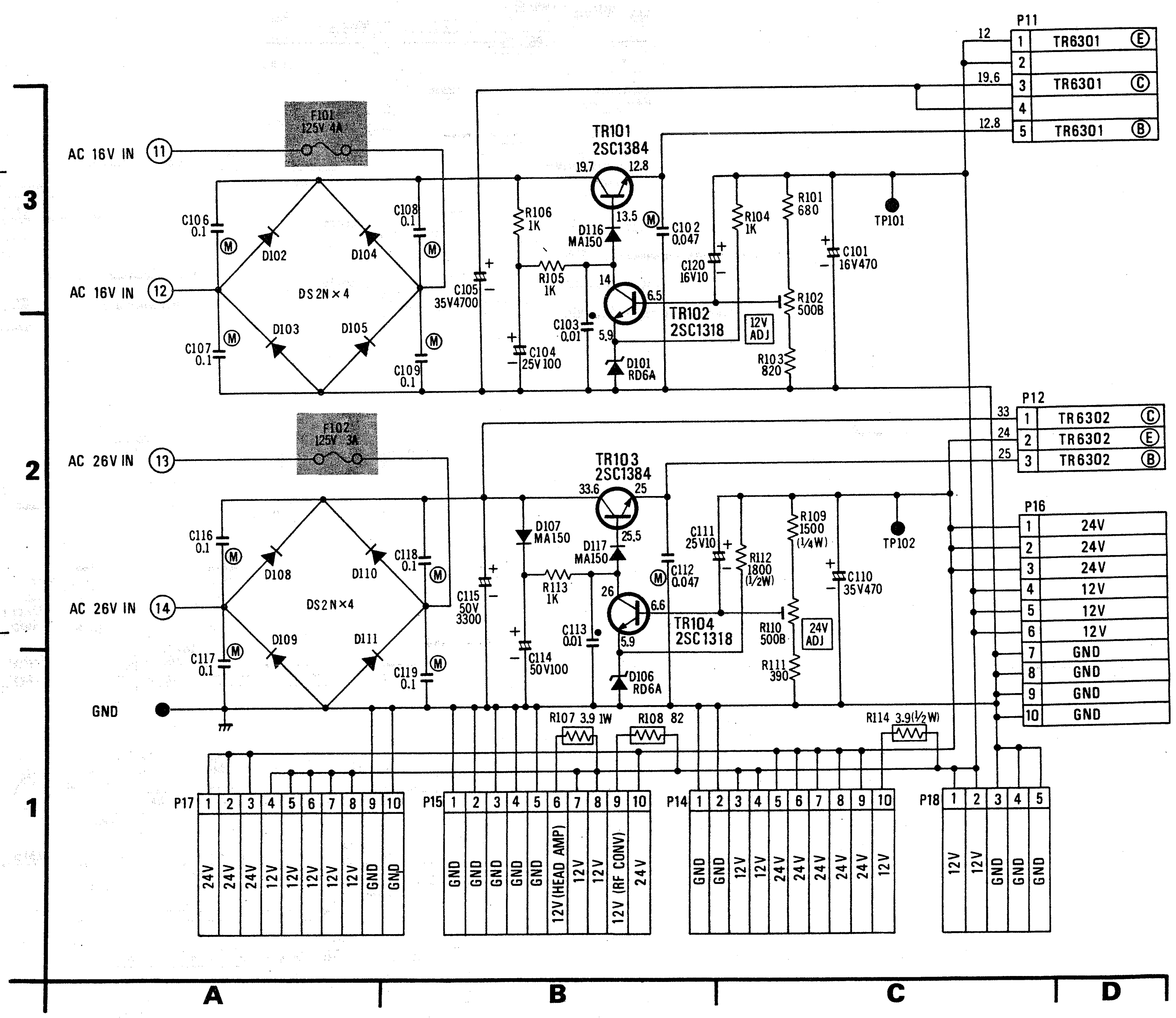
Audio Circuit Board Assy (VEP0435A1)

BOTTOM VIEW



Sub-transport Control Circuit Board Assy (VEP0659A)
Power Supply Circuit Board Assy (VEP0154B)
Transport Control Circuit Board Assy (VEP0656A1)

POWER SUPPLY CIRCUIT SECTION (VEP0154B)



3
2
1
AC 16V IN ⑪
AC 16V IN ⑫
AC 26V IN ⑬
AC 26V IN ⑭
GND
F101 125V 4A
F102 125V 3A
C106 0.1
C107 0.1
C108 0.1
C109 0.1
D102
D104
D103
D105
DS2N×4
C105 35V4700
TR101 2SC1384
19.7
12.8
13.5
R106 1K
D116 MA150
R105 1K
14
6.5
5.9
C103 0.01
C104 25V100
D101 RD6A
C102 0.047
C120 16V10
TR102 2SC1318
R104 1K
R101 680
12V ADJ
R102 500B
R103 820
C101 16V470
TP101
P11
12
19.6
12.8
1 TR6301 Ⓔ
2
3 TR6301 Ⓒ
4
5 TR6301 Ⓑ
C116 0.1
C117 0.1
C118 0.1
C119 0.1
D108
D110
D109
D111
DS2N×4
C115 50V 3300
TR103 2SC1384
33.6
25
25.5
D107 MA150
D117 MA150
R113 1K
26
6.6
5.9
C113 0.01
C114 50V100
D106 RD6A
C111 25V10
C112 0.047
TR104 2SC1318
R112 1800 (1/2W)
R109 1500 (1/4W)
R110 500B
24V ADJ
R111 390
C110 35V470
TP102
P12
33
24
25
1 TR6302 Ⓒ
2 TR6302 Ⓔ
3 TR6302 Ⓑ
P16
1 24V
2 24V
3 24V
4 12V
5 12V
6 12V
7 GND
8 GND
9 GND
10 GND
R107 3.9 1W
R108 82
R114 3.9(1/2W)
P17 1 2 3 4 5 6 7 8 9 10
24V 24V 24V 12V 12V 12V 12V 12V GND GND
P15 1 2 3 4 5 6 7 8 9 10
GND GND GND GND GND 12V (HEAD AMP) 12V 12V 12V (RF CONV) 24V
P14 1 2 3 4 5 6 7 8 9 10
GND GND 12V 12V 24V 24V 24V 24V 24V 12V
P18 1 2 3 4 5
12V 12V GND GND GND
A
B
C
D

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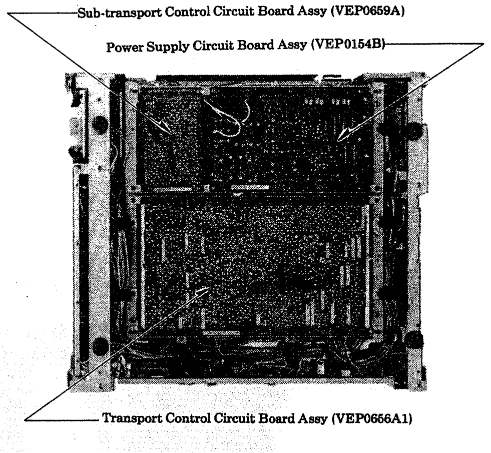
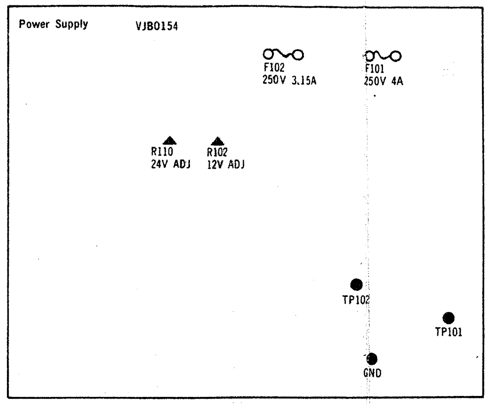
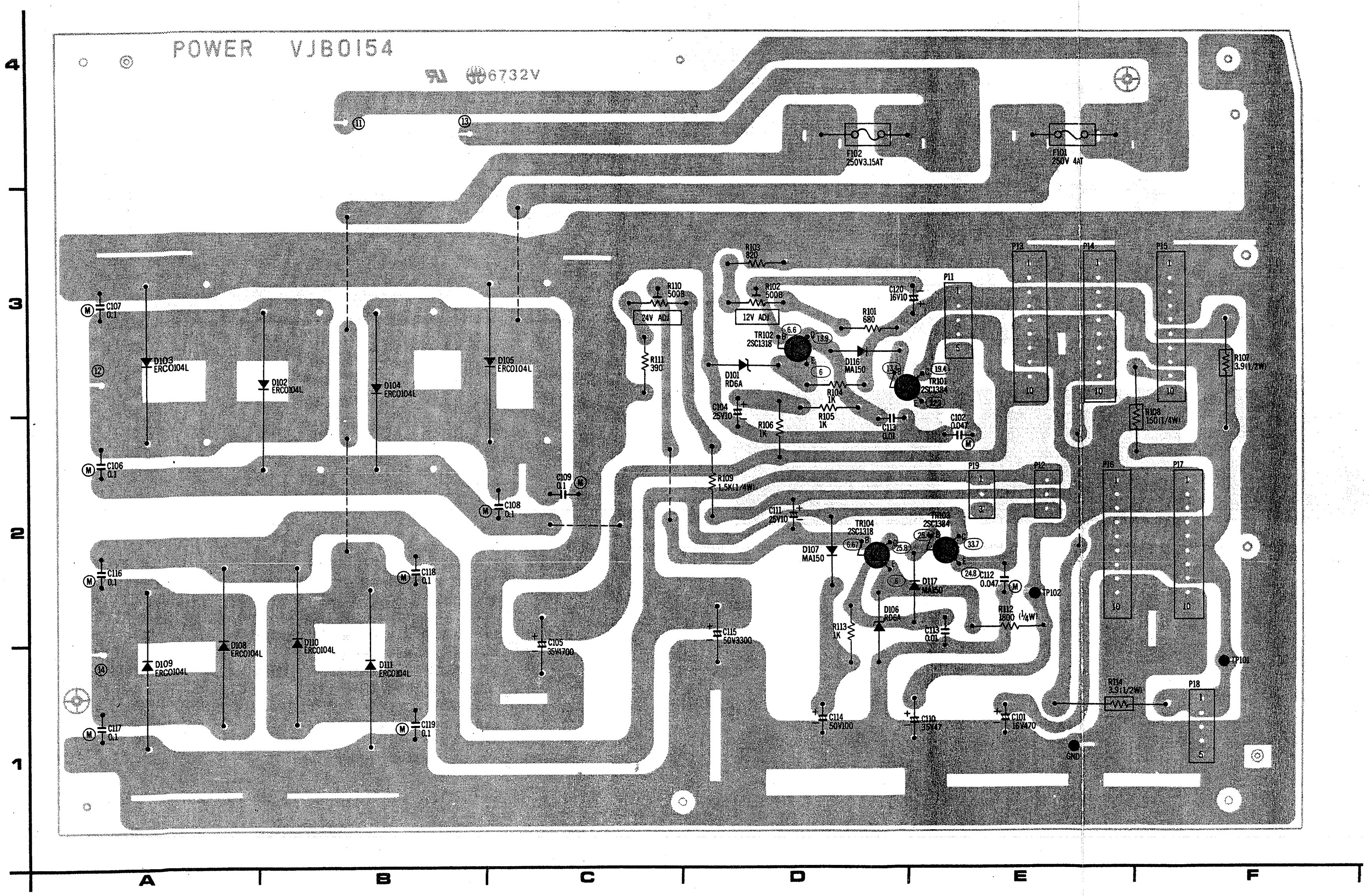
POWER SUPPLY (VEP0154B)	
TR101	E-3
TR102	D-3
TR103	E-2
TR104	D-2

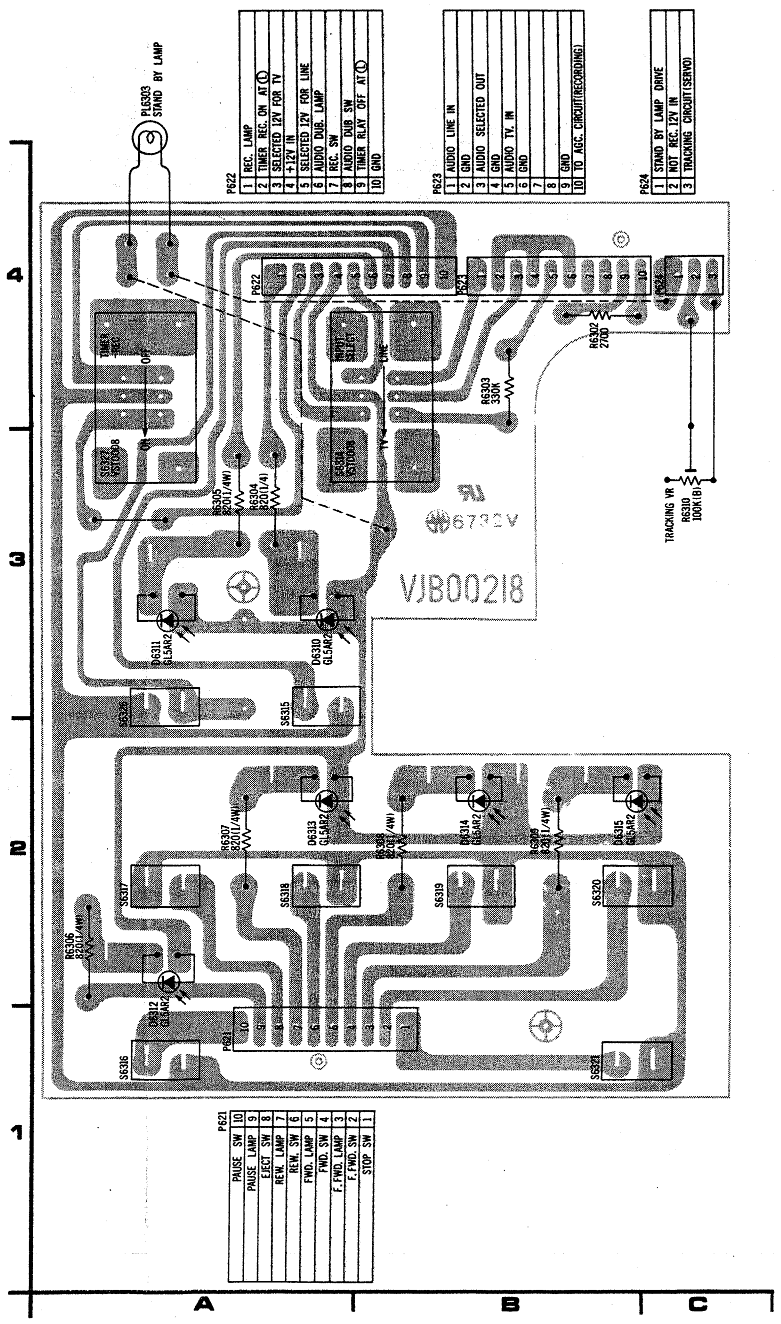

Sub-transport Control Circuit Board Assy (VEP0659A)
Power Supply Circuit Board Assy (VEP0154B)
Transport Control Circuit Board Assy (VEP0656A1)


Power Supply
VJB0154
F102 250V 3.15A
F101 250V 4A
R110 24V ADJ
R102 12V ADJ
TP102
TP101
GND

POWER SUPPLY CIRCUIT BOARD (VEP0154B)


POWER VJB0154
6732V
F102 250V3.15AT
F101 250V 4AT
D103 ERC0104L
D102 ERC0104L
D104 ERC0104L
D105 ERC0104L
D109 ERC0104L
D108 ERC0104L
D110 ERC0104L
D111 ERC0104L
C107 0.1
C106 0.1
C116 0.1
C117 0.1
C118 0.1
C119 0.1
C108 0.1
C109 0.1
C105 35V4700
C115 50V3300
R110 500B
24V ADJ
R102 500B
12V ADJ
R103 82Ω
R111 390
C120 16V10
R101 680
TR102 2SC1318
TR101 2SC1384
D101 RD6A
D116 MA150
C104 25V10
R104 1K
R105 1K
R106 1K
C103 0.01
C102 0.047
R108 150(1/4W)
R107 3.9(1/2W)
R109 1.5K(1/4W)
C111 25V10
TR104 2SC1318
TR103 2SC1384
D107 MA150
D117 MA150
D106 RD6A
C112 0.047
R112 1800 1/4W
R113 1K
C113 0.01
TP102
TP101
R114 3.9(1/2W)
C114 50V100
C110 35V47
C101 16V470
GND
P11
P12
P13
P14
P15
P16
P17
P18
P19
4
3
2
1
A
B
C
D
E
F

RIGHT OPERATION PANEL CIRCUIT BOARD (VJB00218)


PL6303 STAND BY LAMP
P622
P623
P624
P621
TIMER REC.
OUT
S6322 (EVQ-...)
INPUT SELECT
LINE
TV
S6324
R6302 270Ω
R6303 33K
R6305 820(1/4W)
R6304 820(1/4W)
TRACKING VR R6330 100K(B)
6732V
VJB00218
D6311 GL5AR2
D6310 GL5AR2
S6326
S6315
R6307 820(1/4W)
D6313 GL5AR2
R6308 820(1/4W)
D6314 GL5AR2
R6309 820(1/4W)
D6315 GL5AR2
S6317
S6318
S6319
S6320
R6306 820(1/4W)
D6312 GL5AR2
S6316
S6321
4
3
2
1
A
B
C

P622	
1	REC. LAMP
2	TIMER REC. ON AT Ⓛ
3	SELECTED 12V FOR TV
4	+12V IN
5	SELECTED 12V FOR LINE
6	AUDIO DUB. LAMP
7	REC. SW
8	AUDIO DUB SW
9	TIMER RLAY OFF AT Ⓛ
10	GND

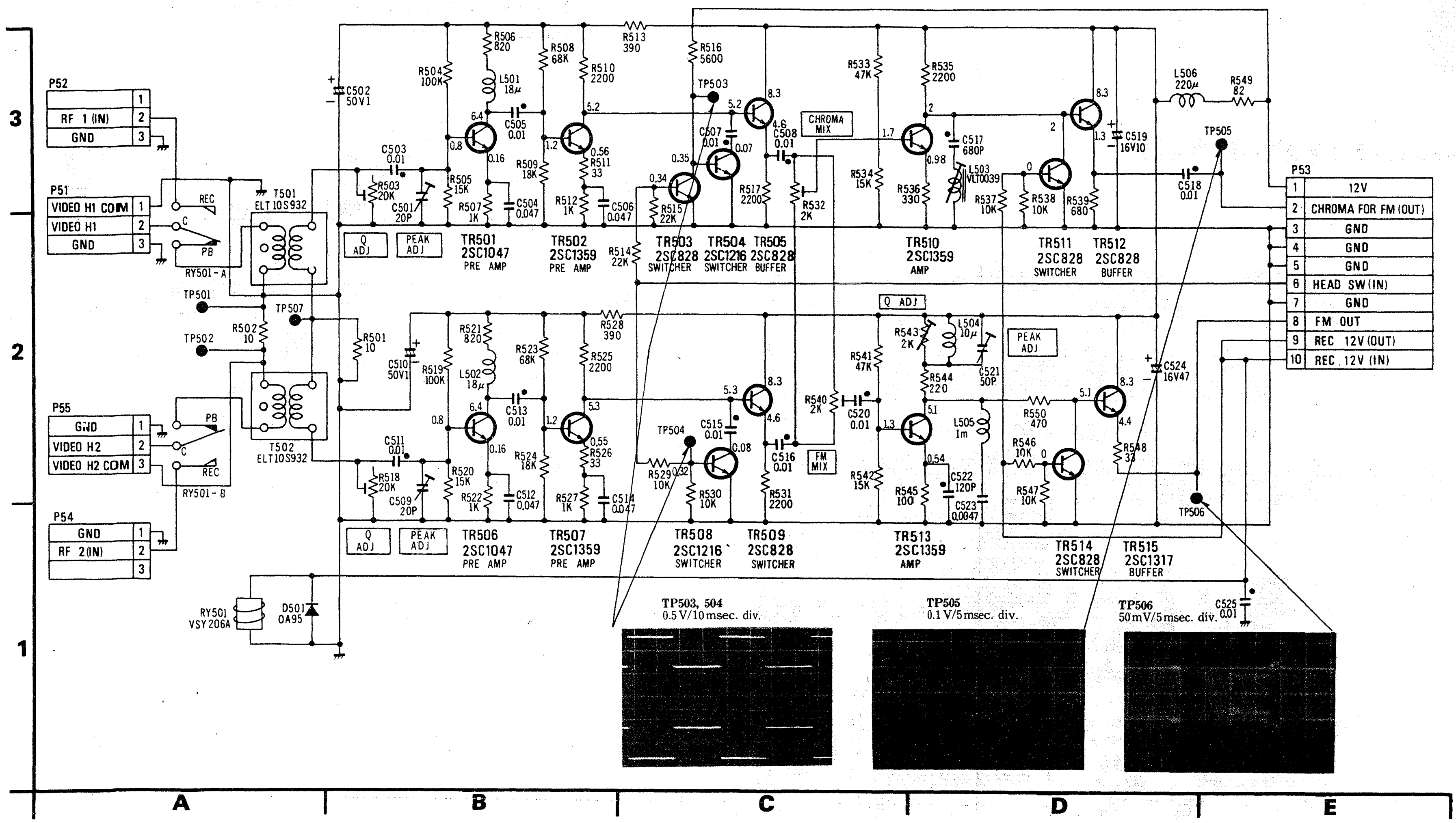
P623	
1	AUDIO LINE IN
2	GND
3	AUDIO SELECTED OUT
4	GND
5	AUDIO TV. IN
6	GND
7	
8	
9	GND
10	TO AGC. CIRCUIT(RECORDING)

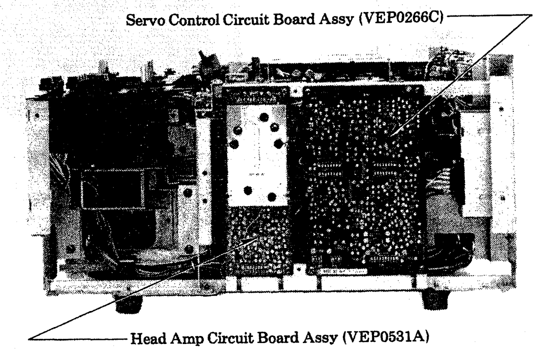
P624	
1	STAND BY LAMP DRIVE
2	NOT REC. 12V IN
3	TRACKING CIRCUIT(SERVO)

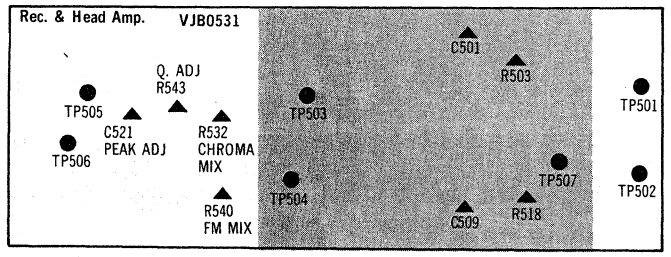
P621	
10	PAUSE SW
9	PAUSE LAMP
8	EJECT SW
7	REW. LAMP
6	REW. SW
5	FWD. LAMP
4	FWD. SW
3	F.FWD. LAMP
2	F.FWD. SW
1	STOP SW

W 9210 (64)

HEAD AMP. CIRCUIT SECTION (VEP0531A)


P52
RF 1 (IN)
GND
P51
VIDEO H1 COM
VIDEO H1
GND
P55
GND
VIDEO H2
VIDEO H2 COM
P54
GND
RF 2 (IN)
RY501-A
RY501-B
RY501 VSY 206A
D501 OA95
T501 ELT10S932
T502 ELT10S932
TP501
TP502
TP507
TR501 2SC1047 PRE AMP
TR502 2SC1359 PRE AMP
TR503 2SC828 SWITCHER
TR504 2SC1216 SWITCHER
TR505 2SC828 BUFFER
TR506 2SC1047 PRE AMP
TR507 2SC1359 PRE AMP
TR508 2SC1216 SWITCHER
TR509 2SC828 SWITCHER
TR510 2SC1359 AMP
TR511 2SC828 SWITCHER
TR512 2SC828 BUFFER
TR513 2SC1359 AMP
TR514 2SC828 SWITCHER
TR515 2SC1317 BUFFER
Q ADJ
PEAK ADJ
CHROMA MIX
FM MIX
TP503
TP504
TP505
TP506
P53
1 12V
2 CHROMA FOR FM (OUT)
3 GND
4 GND
5 GND
6 HEAD SW (IN)
7 GND
8 FM OUT
9 REC 12V (OUT)
10 REC 12V (IN)
TP503, 504 0.5V/10msec. div.
TP505 0.1V/5msec. div.
TP506 50mV/5msec. div.
3
2
1
A
B
C
D
E


Servo Control Circuit Board Assy (VEP0266C)
Head Amp Circuit Board Assy (VEP0531A)


Rec. & Head Amp.
VJB0531
Q. ADJ R543
TP505
TP506
C521 PEAK ADJ
R532 CHROMA MIX
R540 FM MIX
TP503
TP504
C501
R503
TP501
TP502
TP507
C509
R518

NOTES:

1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5%
   ALL CAPACITOR VALUES ARE IN MICROFARADS (μF)
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. CERAMIC CAPACITOR
8. T P TEST POINT
9. NON FLAMMABLE RESISTOR

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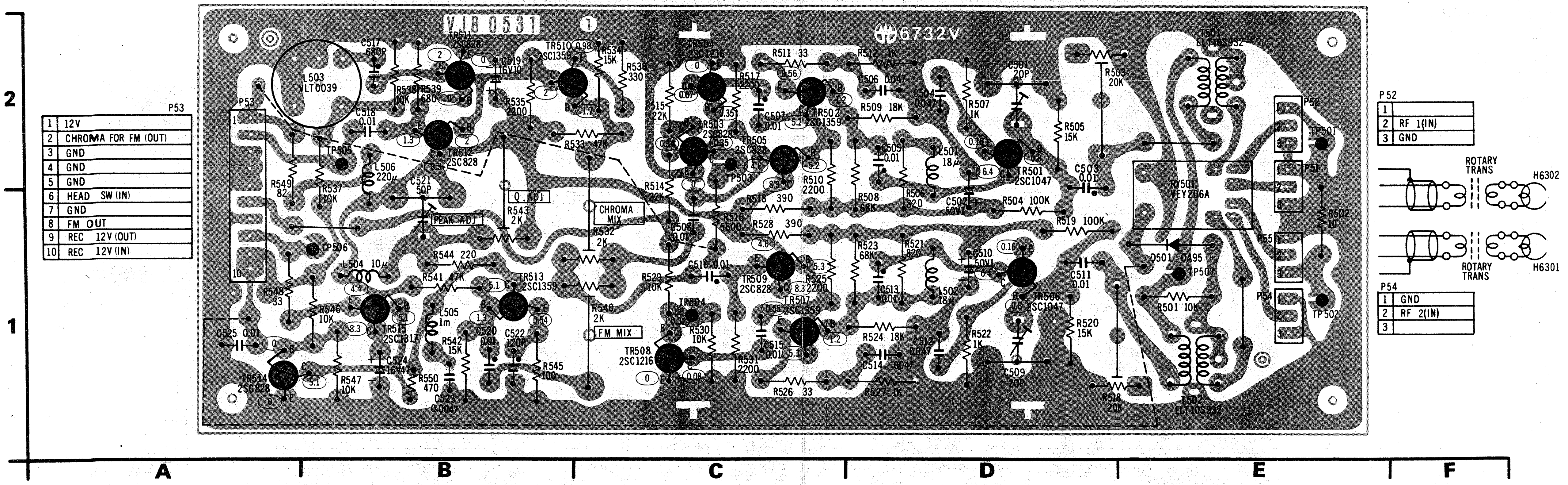
HEAD AMP. CIRCUIT BOARD (VEP0531A)


VJB0531
6732V
L503 VLT0039
TR511 2SC828
TR510 2SC1359
TR512 2SC828
TR513 2SC1359
TR514 2SC828
TR515 2SC1317
TR504 2SC1216
TR503 2SC828
TR505 2SC828
TR502 2SC1359
TR501 2SC1047
TR509 2SC828
TR507 2SC1359
TR508 2SC1216
TR506 2SC1047
RY501 VEY2G6A
D501 OA95
T501 ELT10S932
T502 ELT10S932
L504 10μ
L505 1m
L506 220μ
L501 18μ
L502 18μ
PEAK ADJ
Q ADJ
CHROMA MIX
FM MIX
TP501
TP502
TP503
TP504
TP505
TP506
TP507
P51
P52
P53
P54
P55
ROTARY TRANS
H6302
H6301
A
B
C
D
E
F
1
2

P53

1	12V
2	CHROMA FOR FM (OUT)
3	GND
4	GND
5	GND
6	HEAD SW (IN)
7	GND
8	FM OUT
9	REC 12V (OUT)
10	REC 12V (IN)

P52

1	
2	RF 1(IN)
3	GND

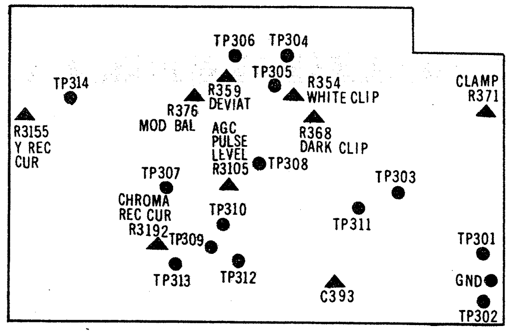
P54

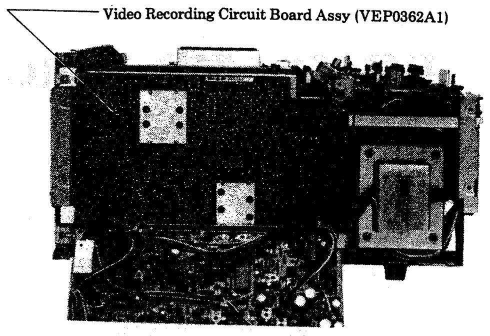
1	GND
2	RF 2(IN)
3	

HEAD Amp (VEP0531A)	
TR501	D-2
TR502	C-2
TR503	C-2
TR504	C-2
TR505	C-2
TR506	D-1
TR507	C-1
TR508	C-1
TR509	C-1
TR510	B-2
TR511	B-2
TR512	B-2
TR513	B-1
TR514	A-1
TR515	B-1

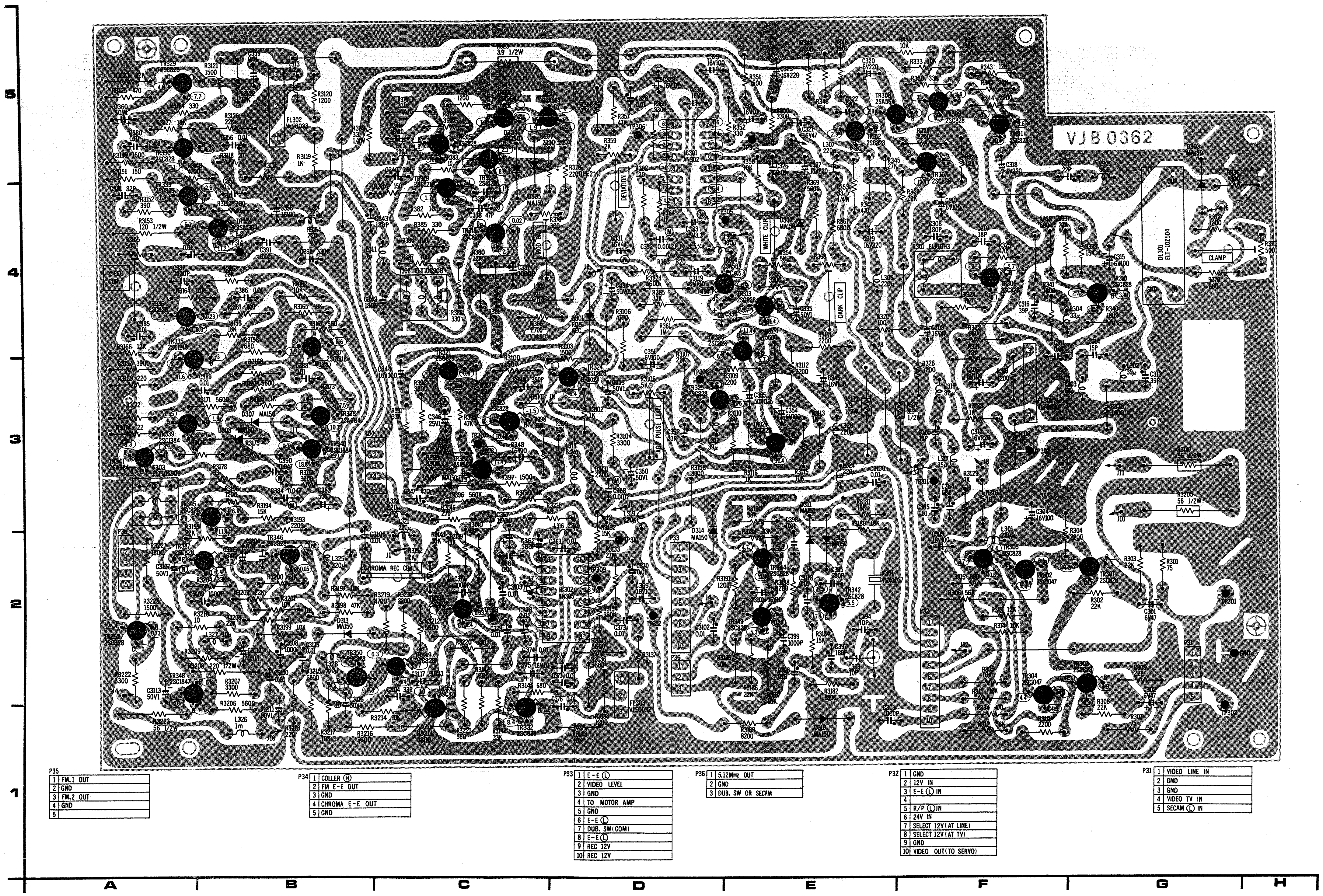
(66) NV9210

VIDEO RECORDING CIRCUIT BOARD (VEP0362A1)


TP306
TP304
TP305
TP314
R359 DEVIAT
R354 WHITE CLIP
CLAMP R371
R376 MOD BAL
R3155 Y REC CUR
AGC PULSE LEVEL R3105
TP308
R368 DARK CLIP
TP307
TP303
CHROMA REC CUR R3192
TP310
TP311
TP309
TP301
TP313
TP312
C393
GND
TP302


Video Recording Circuit Board Assy (VEP0362A1)

VIDEO RECORDING	
TR301	G-2
TR302	F-2
TR303	G-1
TR304	F-2
TR305	F-2
TR306	F-4
TR307	F-5
TR308	E-5
TR309	F-5
TR310	G-4
TR311	F-5
TR312	E-5
TR313	E-4
TR314	E-4
TR315	C-5
TR316	C-5
TR317	C-5
TR318	C-4
TR319	C-4
TR320	C-5
TR321	C-3
TR322	C-3
TR323	C-3
TR324	D-3
TR325	D-3
TR326	E-4
TR327	E-3
TR329	A-5
TR330	A-5
TR331	C-2
TR332	C-1
TR333	A-4
TR334	B-4
TR335	A-3
TR336	A-4
TR337	B-4
TR338	B-3
TR339	A-3
TR340	B-3
TR341	A-3
TR342	E-2
TR343	E-2
TR344	E-2
TR345	B-3
TR346	B-2
TR347	B-2
TR348	A-2
TR349	C-2
TR350	B-2
TR351	C-1
TR352	A-2


VJB 0362
CHROMA REC COIL
DEVIATION
WHITE CLIP
DARK CLIP
CLAMP
Y REC CUR
MOD BAL
PULSE LEVEL
5
4
3
2
1
A
B
C
D
E
F
G
H

P35	
1	FM.1 OUT
2	GND
3	FM.2 OUT
4	GND
5	

P34	
1	COLLER Ⓗ
2	FM E-E OUT
3	GND
4	CHROMA E-E OUT
5	GND

P33	
1	E-E Ⓛ
2	VIDEO LEVEL
3	GND
4	TO MOTOR AMP
5	GND
6	E-E Ⓛ
7	DUB. SW(COM)
8	E-E Ⓛ
9	REC 12V
10	REC 12V

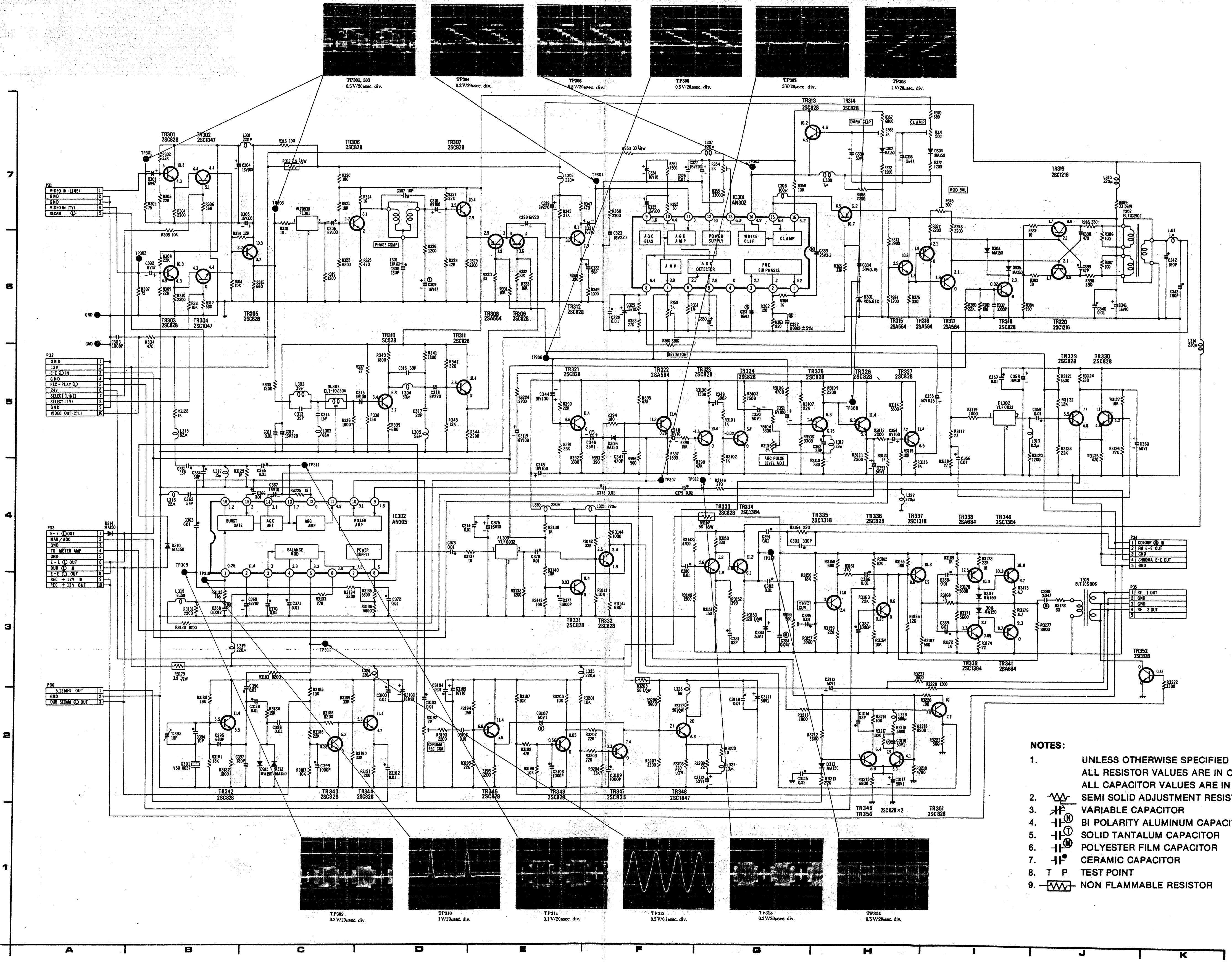
P36	
1	5.12MHz OUT
2	GND
3	DUB. SW OR SECAM

P32	
1	GND
2	12V IN
3	E-E Ⓛ IN
4	
5	R/P Ⓛ IN
6	24V IN
7	SELECT 12V (AT LINE)
8	SELECT 12V (AT TV)
9	GND
10	VIDEO OUT (TO SERVO)

P31	
1	VIDEO LINE IN
2	GND
3	GND
4	VIDEO TV IN
5	SECAM Ⓛ IN

(67) NV-9210

VIDEO RECORDING CIRCUIT SECTION (VEP0362A1)

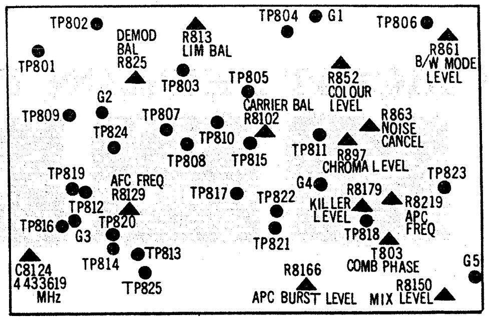

TP301, 303
0.5V/20μsec. div.
TP304
0.2V/20μsec. div.
TP305
0.5V/20μsec. div.
TP306
0.5V/20μsec. div.
TP307
5V/20μsec. div.
TP308
1V/20μsec. div.
TP309
0.2V/20μsec. div.
TP310
1V/20μsec. div.
TP311
0.1V/20μsec. div.
TP312
0.2V/0.1μsec. div.
TP313
0.2V/20μsec. div.
TP314
0.5V/20μsec. div.
TR301 2SC828
TR302 2SC1047
TR303 2SC828
TR304 2SC1047
TR305 2SC828
TR306 2SC828
TR307 2SC828
TR308 2SA564
TR309 2SC828
TR310 2SC828
TR311 2SC828
TR312 2SC828
TR313 2SC828
TR314 2SC828
TR315 2SA564
TR316 2SA564
TR317 2SA564
TR318 2SC828
TR319 2SC1216
TR320 2SC1216
TR321 2SC828
TR322 2SA564
TR323 2SC828
TR324 2SC828
TR325 2SC828
TR326 2SC828
TR327 2SC828
TR329 2SC828
TR330 2SC828
TR331 2SC828
TR332 2SC828
TR333 2SC828
TR334 2SC1384
TR335 2SC1318
TR336 2SC828
TR337 2SC1318
TR338 2SA684
TR340 2SC1384
TR339 2SC1384
TR341 2SA684
TR342 2SC828
TR343 2SC828
TR344 2SC828
TR345 2SC828
TR346 2SC828
TR347 2SC828
TR348 2SC1847
TR349 TR350 2SC828×2
TR351 2SC828
TR352 2SC828
IC301 AN302
IC302 AN305
AGC BIAS
AGC AMP
POWER SUPPLY
WHITE CLIP
CLAMP
AMP
AGC DETECTION
PRE EMPHASIS
DARK CLIP
MOD BAL
PHASE COMP
DEVIATION
AGC PULSE LEVEL ADJ
BURST GATE
AGC DET
AGC AMP
KILLER AMP
BALANCE MOD
POWER SUPPLY
CHROMA REC CUR
P31
1 VIDEO IN (LINE)
2 GND
3 GND
4 VIDEO IN (TV)
5 SECAM
P32
1 GND
2 12V
3 E-E IN
4 GND
5 REC·PLAY
6 24V
7 SELECT (LINE)
8 SELECT (TV)
9 GND
10 VIDEO OUT (CTL)
P33
1 E-E OUT
2 MAN/AGC
3 GND
4 TO METER AMP
5 GND
6 E-E OUT
7 DUB IN
8 E-E OUT
9 REC +12V IN
10 REC +12V OUT
P34
1 COLOUR IN
2 FM E-E OUT
3 GND
4 CHROMA E-E OUT
5 GND
P35
1 RF 1 OUT
2 GND
3 GND
4 RF 2 OUT
5
P36
1 5.12MHz OUT
2 GND
3 DUB SECAM OUT
GND
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J
K

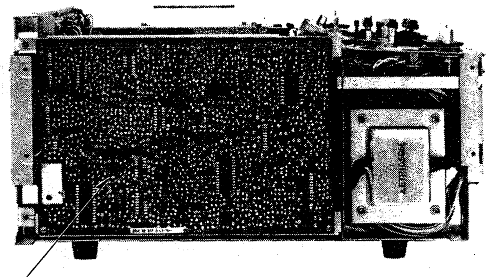
NOTES:

1. UNLESS OTHERWISE SPECIFIED
ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5%
ALL CAPACITOR VALUES ARE IN MICROFARADS (μF)
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. ● CERAMIC CAPACITOR
8. T P TEST POINT
9. NON FLAMMABLE RESISTOR

(68) NV 9210

VIDEO PLAYBACK CIRCUIT BOARD (VEP0838B1)


TP802
TP801
DEMOD BAL R825
R813 LIM BAL
TP803
TP804
G1
TP806
R861 B/W MODE LEVEL
TP805
CARRIER BAL R8102
R852 COLOUR LEVEL
TP809
G2
TP807
TP824
TP808
TP810
TP815
TP811
R863 NOISE CANCEL
R897 CHROMA LEVEL
TP823
TP819
AFC FREQ R8129
TP812
TP816
G3
TP820
TP814
TP813
TP825
TP817
TP822
TP821
G4
R8179 KILLER LEVEL
R8219 APC FREQ
TP818
T803 COMB PHASE
C8124 4 433619 MHz
R8166 APC BURST LEVEL
R8150 MIX LEVEL
G5



Video Playback Circuit Board Assy (VEP0838B1)

P81

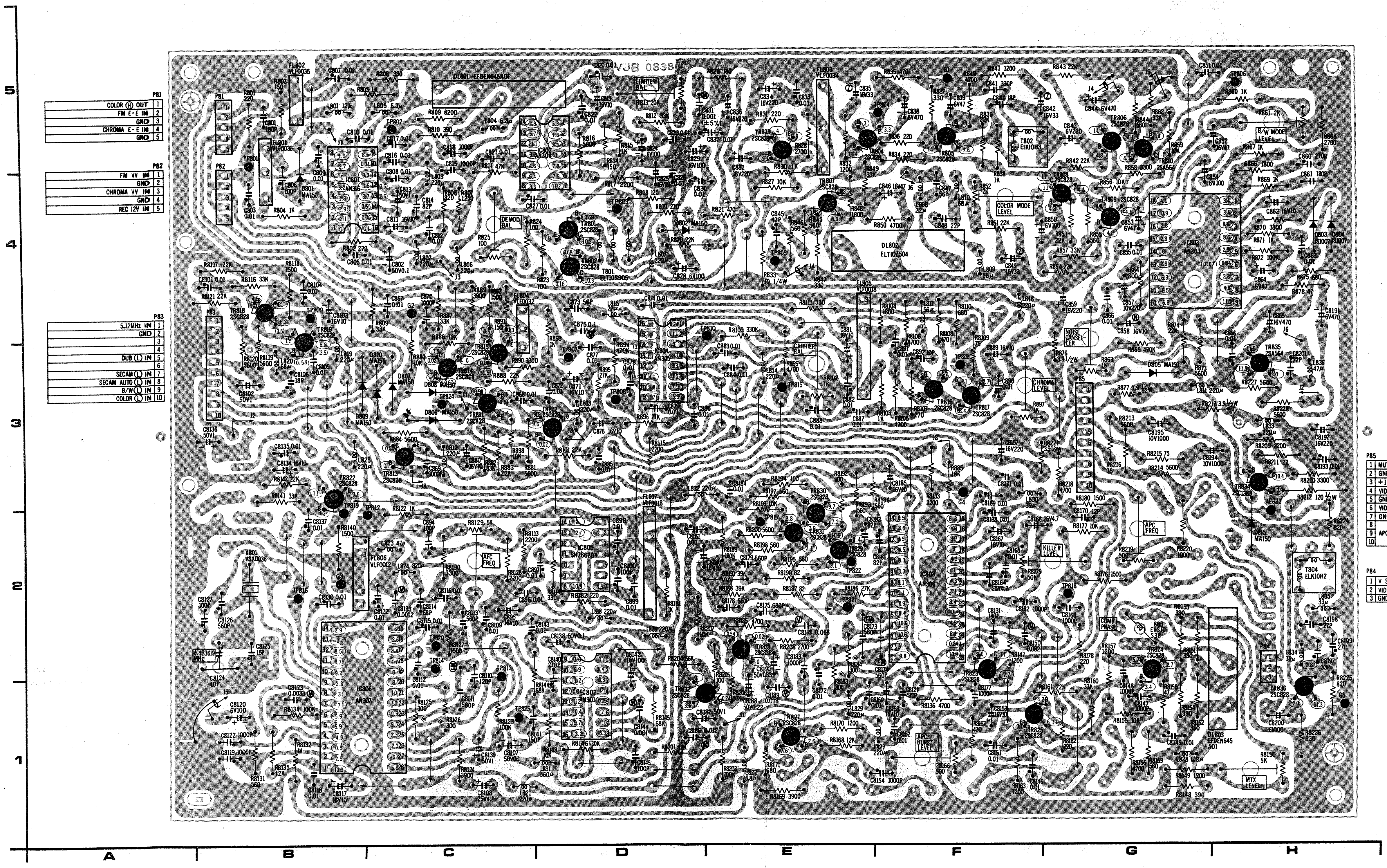
COLOR (H) OUT	1
FM E-E IN	2
GND	3
CHROMA E-E IN	4
GND	5

P82

FM VV IN	1
GND	2
CHROMA VV IN	3
GND	4
REC 12V IN	5

P83

5.12MHz IN	1
GND	2
	3
	4
DUB (L) IN	5
	6
SECAM (L) IN	7
SECAM AUTO (L) IN	8
B/W (L) IN	9
COLOR (L) IN	10


VJB 0838
5
4
3
2
1
A
B
C
D
E
F
G
H
IC801 AN306
IC802 AN307
IC803 AN303
IC805 SN76670N
IC806 AN306
IC808 AN306
DL801 EFDEN645A0K
DL802 ELT102504
DL803 EFDEN645A01
T801 ELT10S905
T802 ELK10H3
T804 ELK10H2
X801 VSX0036
FL801 VLF0036
FL802 VLF0035
FL803 VLF0034
FL804 VLF0032
FL805 VLF0018
FL806 VLF0012
FL807 VLF0018
DEMOD BAL
LIMITER BAL
CARRIER BAL
COLOR MODE LEVEL
NOISE CANSELLER
CHROMA LEVEL
AFC FREQ
APC FREQ
KILLER LEVEL
COMB PHASE
APC BURST LEVEL
MIX LEVEL
B/W MODE LEVEL

P85

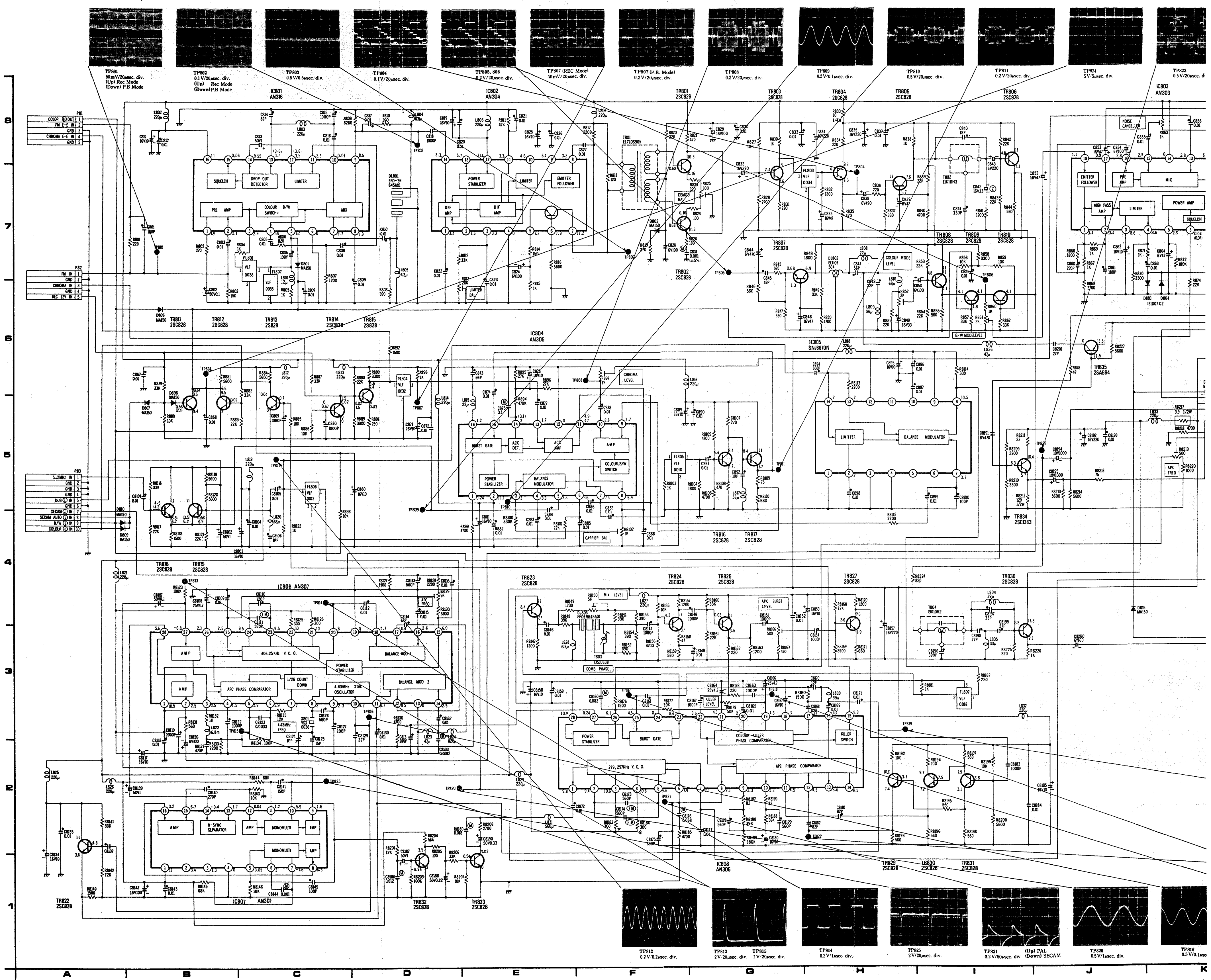
1	MUTING IN
2	GND
3	+12V
4	VIDEO OUT
5	GND
6	VIDEO OUT
7	GND
8	APCVR (−)
9	APCVR (+)
10	APCVR (CENTER)

P84

1	V SYNC IN
2	VIDEO OUT(RF CONVERTOR)
3	GND

VIDEO PLAYBACK CIRCUIT SECTION (VEP0838B1)

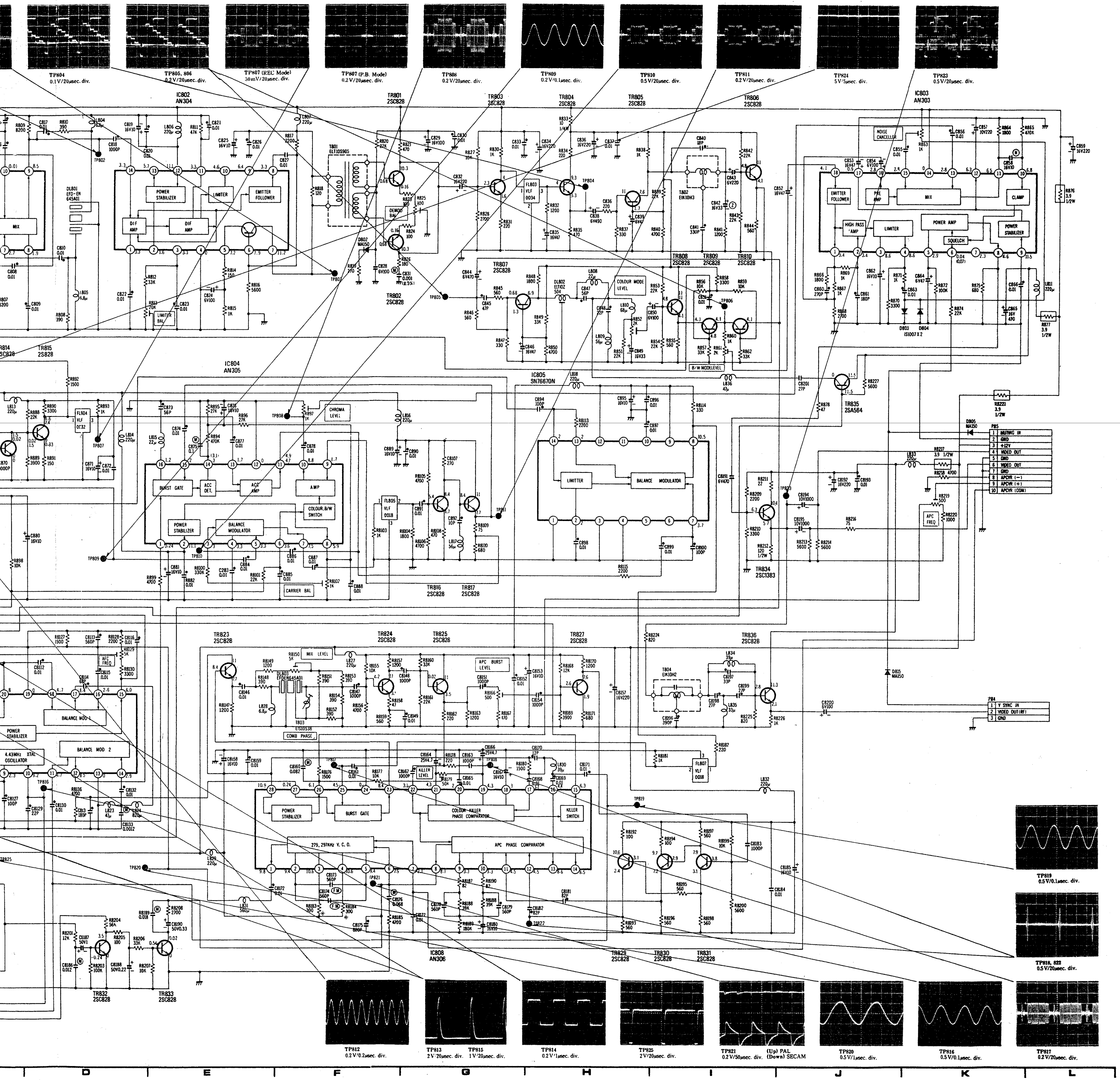
VIDEO PLAYBACK	
TR801	D-4
TR802	D-4
TR803	E-5
TR804	E-5
TR805	F-5
TR806	G-5
TR807	E-4
TR808	G-4
TR809	G-4
TR810	G-5
TR811	C-3
TR812	D-3
TR813	C-3
TR814	C-3
TR815	C-3
TR816	F-3
TR817	F-3
TR818	B-4
TR819	B-3
TR820	B-2
TR821	B-3
TR822	B-3
TR823	F-2
TR824	G-2
TR825	F-1
TR826	G-1
TR827	E-1
TR828	E-1
TR829	E-2
TR830	E-2
TR831	E-2
TR832	D-1
TR833	E-2
TR834	H-3
TR835	H-3


TP801 50mV/20μsec. div. (Up) Rec Mode (Down) P.B Mode
TP802 0.1V/20μsec. div. (Up) Rec Mode (Down) P.B Mode
TP803 0.5V/0.5μsec. div.
TP804 0.1V/20μsec. div.
TP805, 806 0.2V/20μsec. div.
TP807 (REC Mode) 50mV/20μsec. div.
TP807 (P.B. Mode) 0.2V/20μsec. div.
TP808 0.2V/20μsec. div.
TP809 0.2V/0.1μsec. div.
TP810 0.5V/20μsec. div.
TP811 0.2V/20μsec. div.
TP824 5V/5μsec. div.
TP823 0.5V/20μsec. div.
IC801 AN316
IC802 AN304
IC803 AN303
IC804 AN305
IC805 SN76670N
IC806 AN307
IC807 AN301
IC808 AN306
SQUELCH
DROP OUT DETECTOR
LIMITER
PRE AMP
COLOUR B/W SWITCH
MIX
POWER STABILIZER
DIF AMP
EMITTER FOLLOWER
DEMOD BAL
COLOUR MODE LEVEL
B/W MODE LEVEL
NOISE CANCELLER
HIGH PASS AMP
POWER AMP
BURST GATE
ACC DET.
ACC AMP
AMP
COLOUR B/W SWITCH
BALANCE MODULATOR
CARRIER BAL
CHROMA LEVEL
406.25kHz V.C.O.
1/26 COUNT DOWN
AFC PHASE COMPARATOR
4.43MHz XTAL OSCILLATOR
BALANCE MOD 1
BALANCE MOD 2
H-SYNC SEPARATOR
MONOMULTI
MIX LEVEL
COMB PHASE
APC BURST LEVEL
KILLER LEVEL
COLOUR KILLER PHASE COMPARATOR
KILLER SWITCH
279.297kHz V.C.O.
APC PHASE COMPARATOR
TR835 2SA564
TR834 2SC1383
TP812 0.2V/0.2μsec. div.
TP813 2V/20μsec. div.
TP815 1V/20μsec. div.
TP814 0.2V/1μsec. div.
TP825 2V/20μsec. div.
TP821 0.2V/5μsec. div. (Up) PAL (Down) SECAM
TP820 0.5V/1μsec. div.
TP816 0.5V/0.1μsec.
A B C D E F G H I J K
1 2 3 4 5 6 7 8

Measure the voltages in playback mode. The voltages indicatad in brackets ( ) are measured in playing back the b/w picture, other voltages in the col

(69) NV 9210

IRCUIT SECTION (VEP0838B1)


TP804 0.1V/20μsec. div.
TP805, 806 0.2V/20μsec. div.
TP807 (REC Mode) 50mV/20μsec. div.
TP807 (P.B. Mode) 0.2V/20μsec. div.
TP808 0.2V/20μsec. div.
TP809 0.2V/0.1μsec. div.
TP810 0.5V/20μsec. div.
TP811 0.2V/20μsec. div.
TP824 5V/5μsec. div.
TP823 0.5V/20μsec. div.
IC802 AN304
TR801 2SC828
TR803 2SC828
TR804 2SC828
TR805 2SC828
TR806 2SC828
IC803 AN303
NOISE CANCELLER
TR807 2SC828
TR808 2SC828
TR809 2SC828
TR810 2SC828
TR802 2SC828
IC804 AN305
IC805 SN76670N
TR835 2SA564
TR834 2SC1383
TR816 2SC828
TR817 2SC828
TR823 2SC828
TR824 2SC828
TR825 2SC828
TR827 2SC828
TR836 2SC828
IC808 AN306
TR829 2SC828
TR830 2SC828
TR831 2SC828
TR832 2SC828
TR833 2SC828
TP819 0.5V/0.1μsec. div.
TP818, 822 0.5V/20μsec. div.
TP812 0.2V/0.2μsec. div.
TP813 2V/20μsec. div.
TP815 1V/20μsec. div.
TP814 0.2V/1μsec. div.
TP825 2V/20μsec. div.
TP821 0.2V/50μsec. div. (Up) PAL (Down) SECAM
TP820 0.5V/1μsec. div.
TP816 0.5V/0.1μsec. div.
TP817 0.2V/20μsec. div.
D
E
F
G
H
I
J
K
L

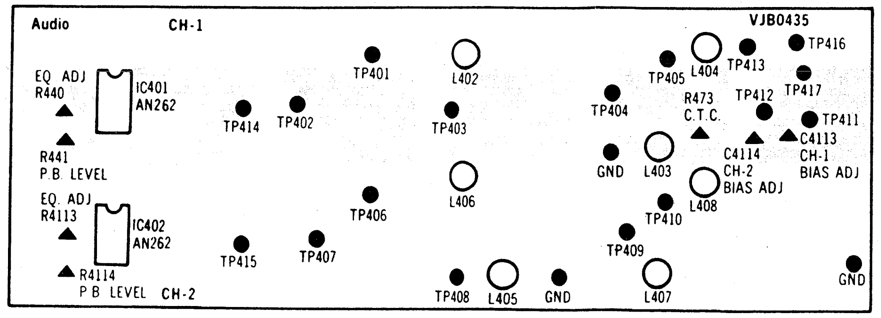
easure the voltages in playback mode. The voltages indicatad in brackets ( ) are measured in playing back the b/w picture, other voltages in the color picture.

NOTES:

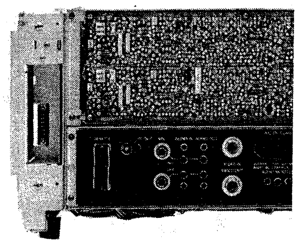
1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5%
   ALL CAPACITOR VALUES ARE IN MICROFARADS (μF)
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. ● CERAMIC CAPACITOR.
8. FM FILM MICA CAPACITOR
9. TP TEST POINT
10. NON FLAMMABLE RESISTOR
11. METAL OXIDE RESISTOR

(70) NV 9260

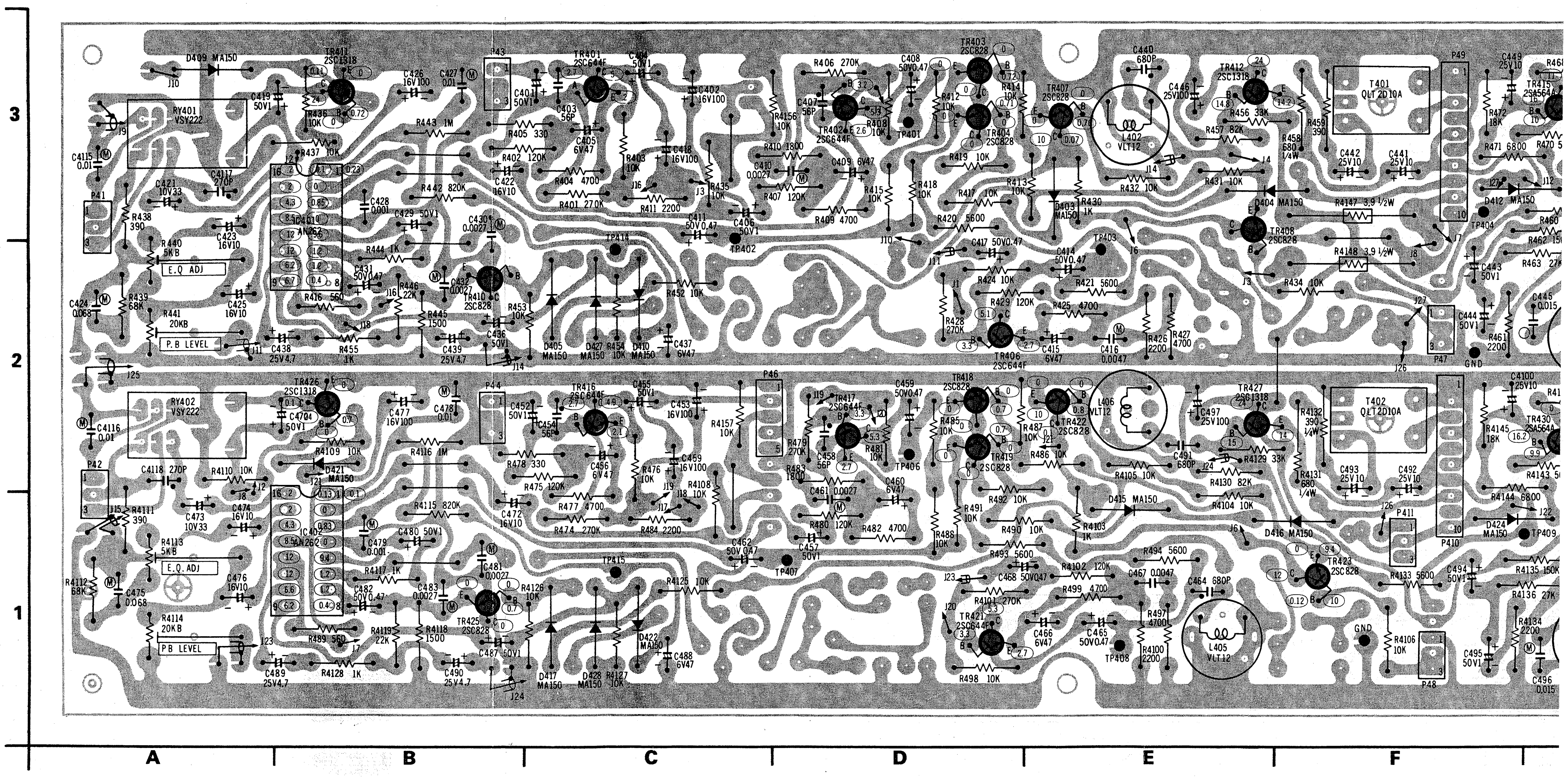
AUDIO CIRCUIT BOARD (VEP0435A1)


Audio
CH-1
VJB0435
EQ ADJ
R440
IC401
AN262
R441
P.B. LEVEL
EQ. ADJ
R4113
IC402
AN262
R4114
P.B. LEVEL
CH-2
TP401
TP402
TP403
TP404
TP405
TP406
TP407
TP408
TP409
TP410
TP411
TP412
TP413
TP414
TP415
TP416
TP417
L402
L403
L404
L405
L406
L407
L408
R473
C.T.C.
C4114
CH-2
BIAS ADJ
C4113
CH-1
BIAS ADJ
GND

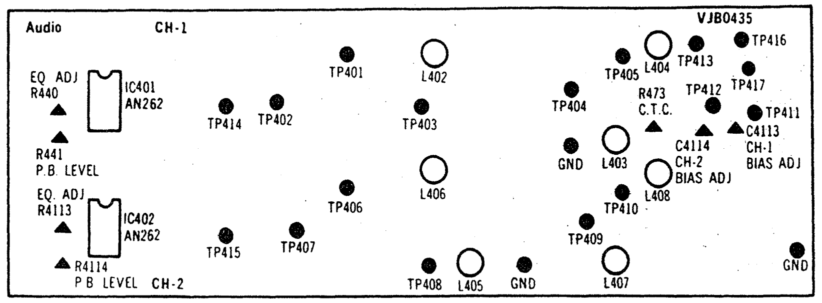
Audio Circuit Board A

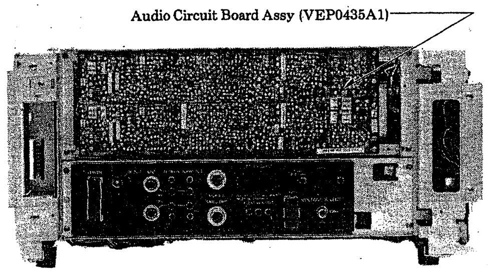


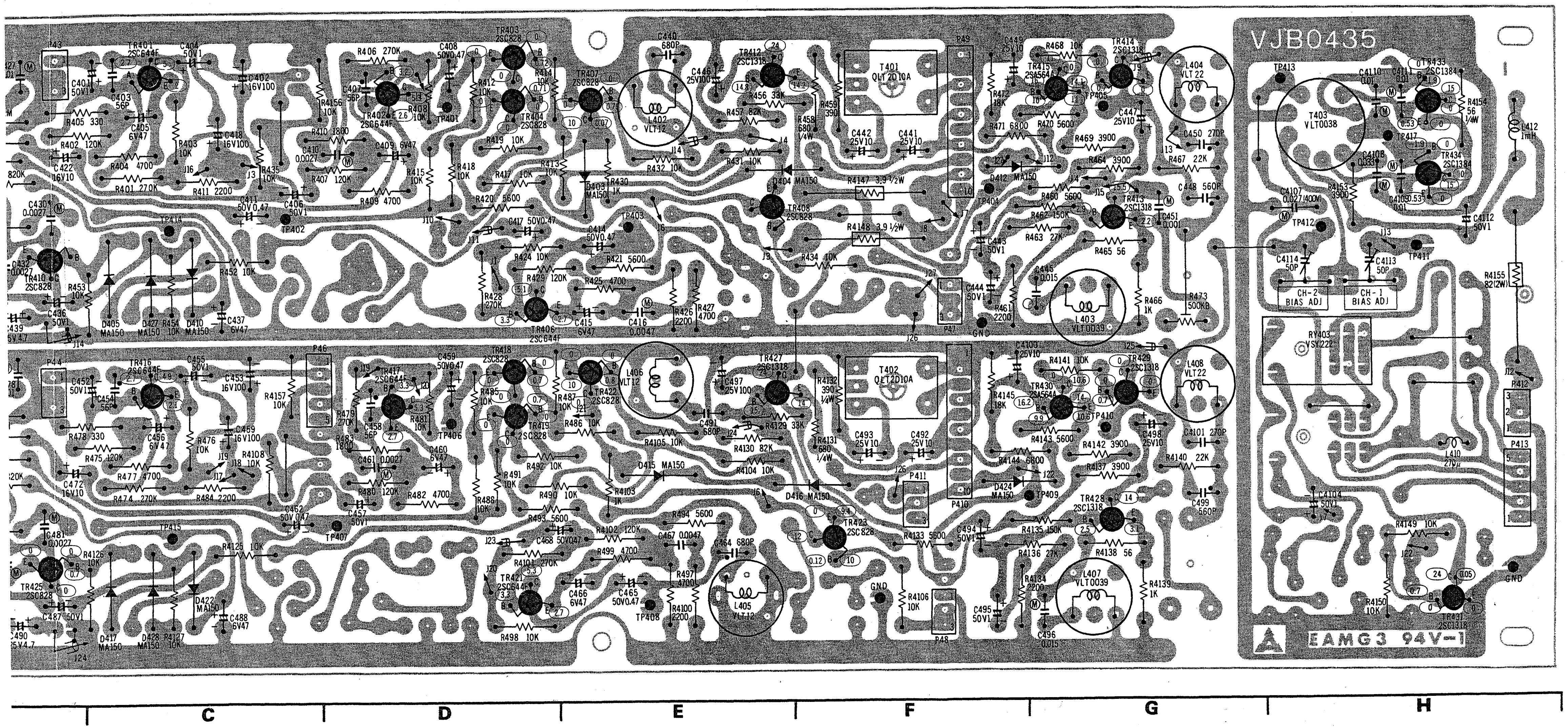
AUDIO (VEP0435A1)	
TR401	C-3
TR402	D-3
TR403	D-3
TR404	D-3
TR406	D-2
TR407	E-3
TR408	E-2
TR410	B-2
TR411	B-3
TR412	E-3
TR413	G-3
TR414	G-3
TR415	G-3
TR416	C-2
TR417	D-2
TR418	D-2
TR419	D-2
TR421	D-1
TR422	E-2
TR423	F-1
TR425	B-1
TR426	B-2
TR427	E-2
TR428	G-1
TR429	G-2
TR430	G-2
TR431	H-1
TR433	H-3
TR434	H-3


3
2
1
A
B
C
D
E
F
RY401
VSY222
RY402
VSY222
IC401
AN262
IC402
AN262
TR401 2SC644F
TR402 2SC644F
TR403 2SC828
TR404 2SC828
TR406 2SC644F
TR407 2SC828
TR408 2SC828
TR410 2SC828
TR411 2SC1318
TR412 2SC1318
TR415 2SA564A
TR416 2SC644F
TR417 2SC644F
TR418 2SC828
TR419 2SC828
TR421 2SC644F
TR422 2SC828
TR423 2SC828
TR425 2SC828
TR426 2SC1318
TR427 2SC1318
TR430 2SA564A
T401 QLT2D10A
T402 QLT2D10A
L402 VLT12
L405 VLT12
L406 VLT12
E.Q. ADJ
P.B. LEVEL
TP401
TP402
TP403
TP404
TP406
TP407
TP408
TP409
TP414
TP415
GND
P41
P42
P43
P44
P46
P47
P48
P49
P410
P411

(VEP0435A1)


Audio
CH-1
VJB0435
EQ ADJ
R440
IC401
AN262
R441
P.B LEVEL
EQ. ADJ
R4113
IC402
AN262
R4114
P B LEVEL CH-2
TP401
L402
TP403
L406
TP406
TP414
TP402
TP415
TP407
TP408
L405
GND
TP404
GND
L403
TP405
L404
TP413
TP416
R473
C.T.C.
TP412
TP417
TP411
C4113
CH-1
BIAS ADJ
C4114
CH-2
BIAS ADJ
L408
TP410
TP409
L407
GND


Audio Circuit Board Assy (VEP0435A1)


VJB0435
EAMG3 94V-1
CH-2
BIAS ADJ
CH-1
BIAS ADJ
C
D
E
F
G
H

NOTES:

1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5%
   ALL CAPACITOR VALUES ARE IN MICROFARADS (μF)
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. ● CERAMIC CAPACITOR
8. T P TEST POINT
9. NON FLAMMABLE RESISTOR

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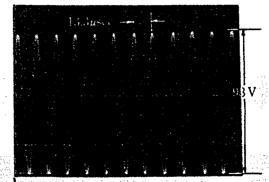
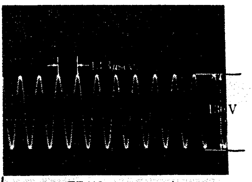
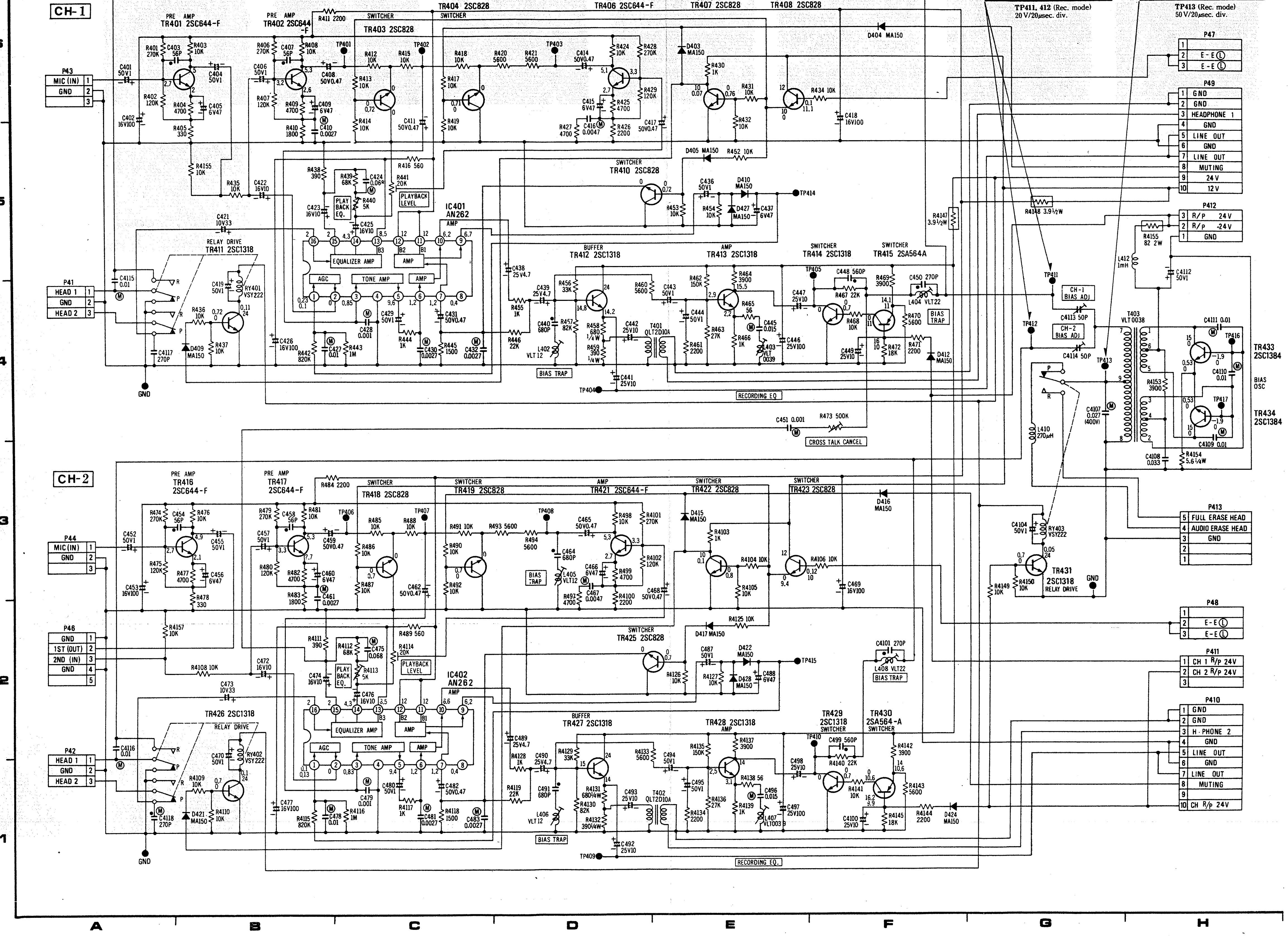
AUDIO CIRCUIT SECTION (VEP0435A1)



TP411, 412 (Rec. mode)
20 V/20μsec. div.



TP413 (Rec. mode)
50 V/20μsec. div.


CH-1
CH-2
PRE AMP TR401 2SC644-F
PRE AMP TR402 2SC644-F
SWITCHER TR403 2SC828
SWITCHER TR404 2SC828
AMP TR406 2SC644-F
SWITCHER TR407 2SC828
SWITCHER TR408 2SC828
SWITCHER TR410 2SC828
RELAY DRIVE TR411 2SC1318
BUFFER TR412 2SC1318
AMP TR413 2SC1318
SWITCHER TR414 2SC1318
SWITCHER TR415 2SA564A
IC401 AN262
IC402 AN262
EQUALIZER AMP
AGC
TONE AMP
AMP
PLAY BACK EQ.
PLAYBACK LEVEL
BIAS TRAP
RECORDING EQ
CROSS TALK CANCEL
CH-1 BIAS ADJ
CH-2 BIAS ADJ
T401 QLT2D10A
T402 QLT2D10A
T403 VLT0038
TR433 2SC1384
TR434 2SC1384
BIAS OSC
RY401 VSY222
RY402 VSY222
RY403 VSY222
PRE AMP TR416 2SC644-F
PRE AMP TR417 2SC644-F
SWITCHER TR418 2SC828
SWITCHER TR419 2SC828
AMP TR421 2SC644-F
SWITCHER TR422 2SC828
SWITCHER TR423 2SC828
SWITCHER TR425 2SC828
RELAY DRIVE TR426 2SC1318
BUFFER TR427 2SC1318
AMP TR428 2SC1318
SWITCHER TR429 2SC1318
SWITCHER TR430 2SA564-A
TR431 2SC1318 RELAY DRIVE
P43 MIC (IN) GND
P41 HEAD 1 GND HEAD 2
P44 MIC (IN) GND
P46 GND 1ST (OUT) 2ND (IN) GND
P42 HEAD 1 GND HEAD 2
P47 E-E Ⓛ E-E Ⓛ
P49 GND GND HEADPHONE 1 GND LINE OUT GND LINE OUT MUTING 24V 12V
P412 R/P 24V R/P -24V GND
P413 FULL ERASE HEAD AUDIO ERASE HEAD GND
P48 E-E Ⓛ E-E Ⓛ
P411 CH 1 R/P 24V CH 2 R/P 24V
P410 GND GND H·PHONE 2 GND LINE OUT GND LINE OUT MUTING CH R/P 24V
TP401 TP402 TP403 TP404 TP405 TP406 TP407 TP408 TP409 TP410 TP411 TP412 TP413 TP414 TP415 TP416 TP417
GND
A B C D E F G H
1 2 3 4 5 6

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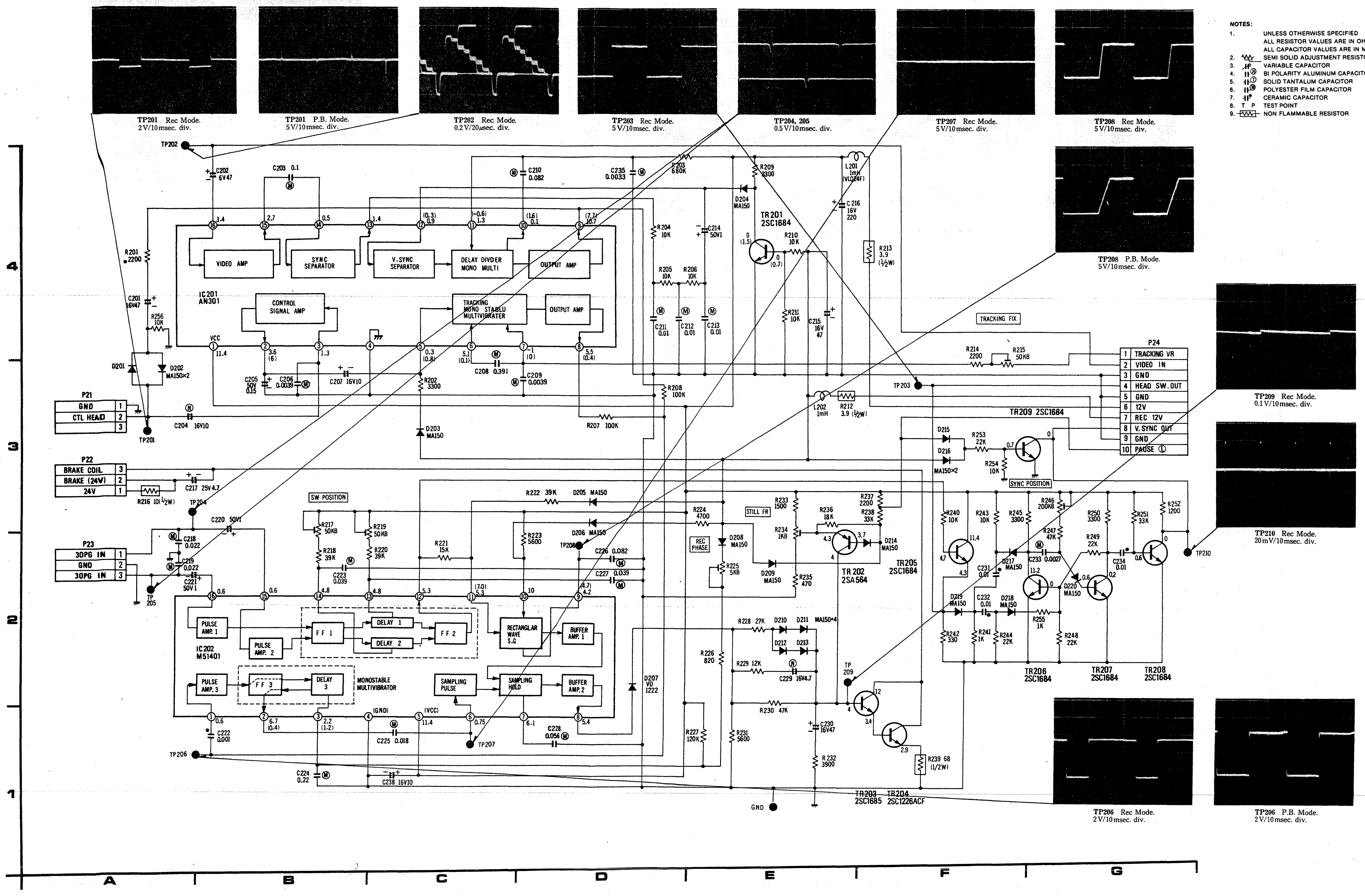
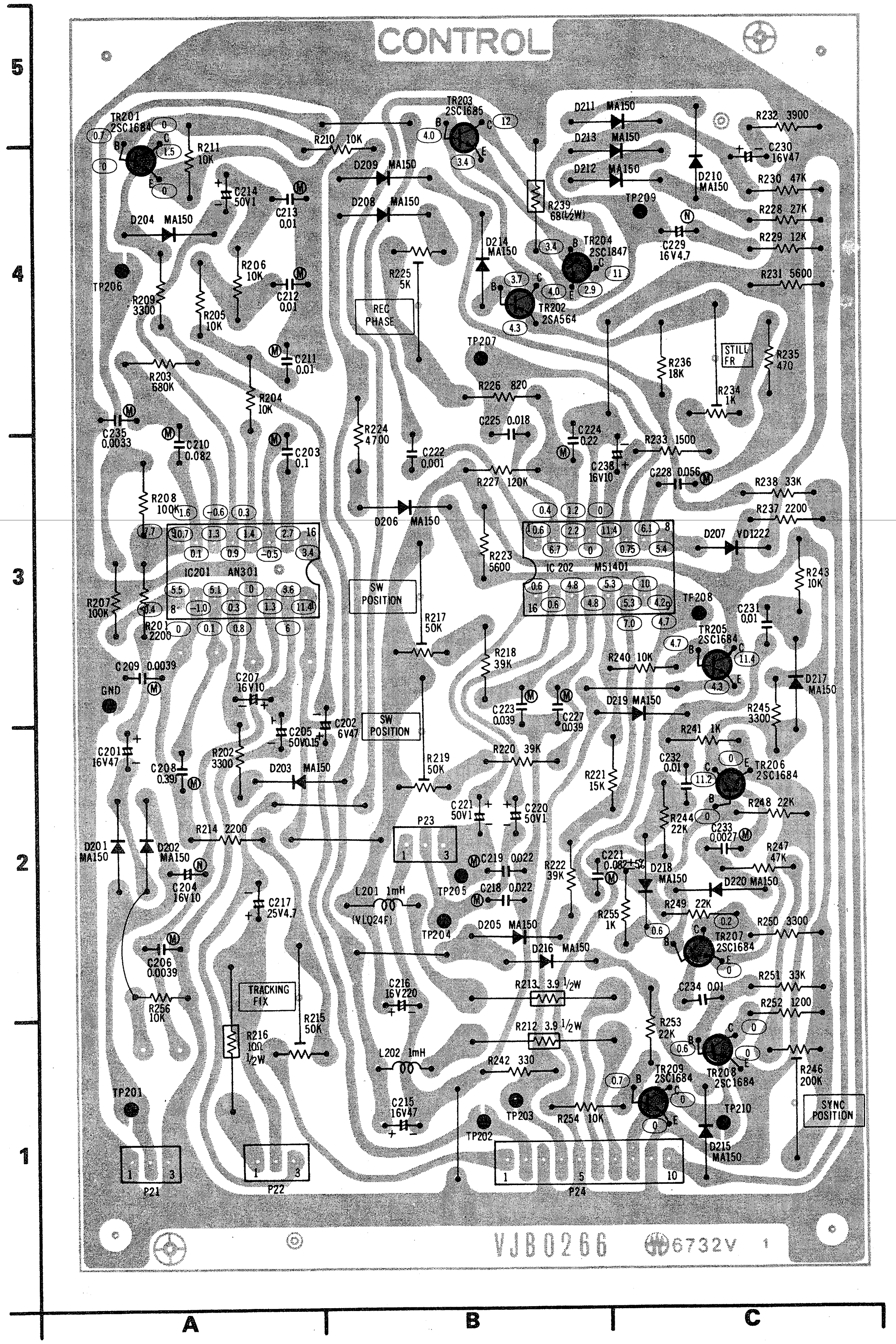
SERVO CONTROL CIRCUIT SECTION (VEP0266C)

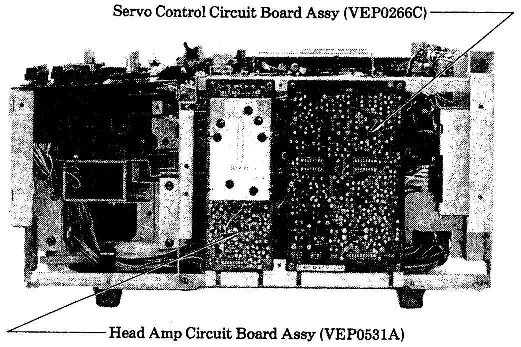

TP201 Rec Mode. 2V/10msec. div.
TP201 P.B. Mode. 5V/10msec. div.
TP202 Rec Mode. 0.2V/20μsec. div.
TP203 Rec Mode. 5V/10msec. div.
TP204, 205 0.5V/10msec. div.
TP207 Rec Mode. 5V/10msec. div.
TP208 Rec Mode. 5V/10msec. div.
TP208 P.B. Mode. 5V/10msec. div.
TP209 Rec Mode. 0.1V/10msec. div.
TP210 Rec Mode. 20mV/10msec. div.
TP206 Rec Mode. 2V/10msec. div.
TP206 P.B. Mode. 2V/10msec. div.

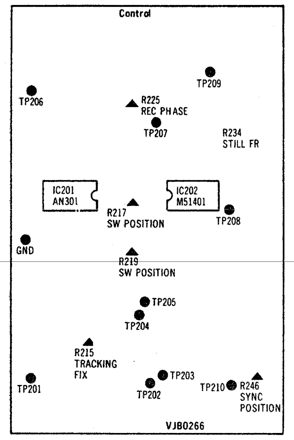
TP202
C202 6V47
C203 0.1
C210 0.082
C235 0.0033
R203 680K
R209 3300
L201 1mH (VLQ14F)
D204 MA150
TR201 2SC1684
C216 16V 220
R204 10K
C214 50V1
R210 10K
R213 3.9 (½W)
R201 2200
VIDEO AMP
SYNC SEPARATOR
V.SYNC SEPARATOR
DELAY DIVDER MONO MULTI
OUTPUT AMP
IC201 AN301
CONTROL SIGNAL AMP
TRACKING MONO STABLU MULTIVIBRATER
OUTPUT AMP
VCC
R205 10K
R206 10K
C211 0.01
C212 0.01
C213 0.01
R211 10K
C215 16V 47
TRACKING FIX
C201 16V47
R256 10K
D201
D202 MA150×2
C205 50V 0.15
C206 0.0039
C207 16V10
R202 3300
C208 0.39J
C209 0.0039
R208 100K
L202 1mH
R212 3.9 (½W)
TP203
R214 2200
R215 50KB
P24
1 TRACKING VR
2 VIDEO IN
3 GND
4 HEAD SW. OUT
5 GND
6 12V
7 REC 12V
8 V.SYNC OUT
9 GND
10 PAUSE Ⓛ
P21
GND 1
CTL HEAD 2
3
C204 16V10
TP201
D203 MA150
R207 100K
TR209 2SC1684
D215
D216 MA150×2
R253 22K
R254 10K
SYNC POSITION
P22
BRAKE COIL 3
BRAKE (24V) 2
24V 1
C217 25V4.7
R216 10 (½W)
TP204
SW POSITION
R222 39K
D205 MA150
R224 4700
STILL FR
R233 1500
R236 18K
R237 2200
R238 33K
R240 10K
R243 10K
R245 3300
R246 200KB
R247 47K
R250 3300
R251 33K
R252 1200
TP210
P23
30PG IN 1
GND 2
30PG IN 3
C220 50V1
C218 0.022
C219 0.022
C221 50V1
TP 205
R217 50KB
R219 50KB
R218 39K
R220 39K
C223 0.039
R221 15K
R223 5600
D206 MA150
TP208
C226 0.082
C227 0.039
REC PHASE
D208 MA150
R225 5KB
D209 MA150
R234 1KB
R235 470
TR202 2SA564
D214 MA150
TR205 2SC1684
C231 0.01
D217 MA150
C233 0.0027
R249 22K
C234 0.01
D220 MA150
PULSE AMP. 1
PULSE AMP. 2
IC202 M51401
FF 1
DELAY 1
DELAY 2
FF 2
RECTANGLAR WAVE S.G
BUFFER AMP. 1
R228 27K
D210
D211 MA150×4
D212
D213
D219 MA150
C232 0.01
D218 MA150
R255 1K
R242 330
R241 1K
R244 22K
R248 22K
TR206 2SC1684
TR207 2SC1684
TR208 2SC1684
PULSE AMP. 3
FF 3
DELAY 3
MONOSTABLE MULTIVIBRATOR
SAMPLING PULSE
SAMPLING HOLD
BUFFER AMP. 2
R226 820
R229 12K
C229 16V4.7
D207 VD 1222
TP 209
R230 47K
(GND)
(VCC)
C222 0.001
C225 0.018
TP207
C228 0.056
R227 120K
R231 5600
C230 16V47
R232 3900
R239 68 (1/2W)
TP206
C224 0.22
C238 16V10
GND
TR203 2SC1685
TR204 2SC1226ACF
4
3
2
1
A
B
C
D
E
F
G

NOTES:
1. UNLESS OTHERWISE SPECIFIED
ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5
ALL CAPACITOR VALUES ARE IN MICROFARADS (μF
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. ● CERAMIC CAPACITOR
8. T P TEST POINT
9. NON FLAMMABLE RESISTOR

SERVO CONTROL CIRCUIT BOARD (VEP0266C)

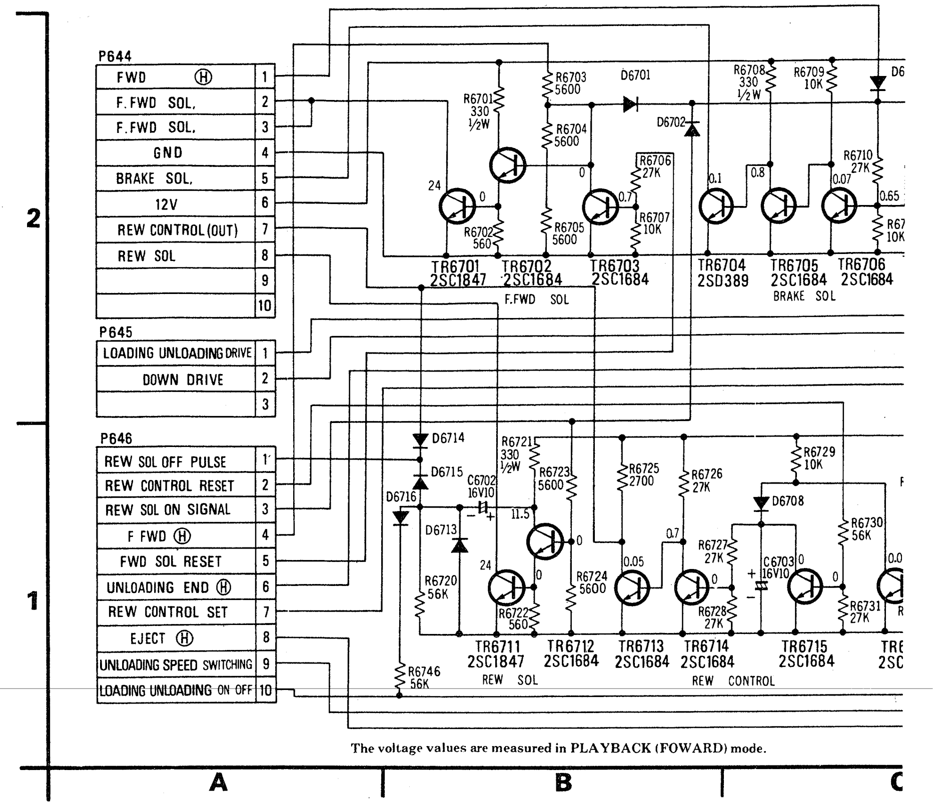

CONTROL
TR201 2SC1684
TR203 2SC1685
TR204 2SC1847
TR202 2SA564
TR205 2SC1684
TR206 2SC1684
TR207 2SC1684
TR208 2SC1684
TR209 2SC1684
IC201 AN301
IC 202 M51401
REC PHASE
STILL FR
SW POSITION
TRACKING FIX
SYNC POSITION
TP201
TP202
TP203
TP204
TP205
TP206
TP207
TP208
TP209
TP210
GND
P21
P22
P23
P24
L201 1mH (VLQ24F)
L202 1mH
VJB0266
6732V
5
4
3
2
1
A
B
C


Servo Control Circuit Board Assy (VEP0266C)
Head Amp Circuit Board Assy (VEP0531A)


Control
TP206
TP209
R225 REC PHASE
TP207
R234 STILL FR
IC201 AN301
IC202 M51401
R217 SW POSITION
TP208
GND
R219 SW POSITION
TP205
TP204
R215 TRACKING FIX
TP203
TP202
TP201
TP210
R246 SYNC POSITION
VJB0266

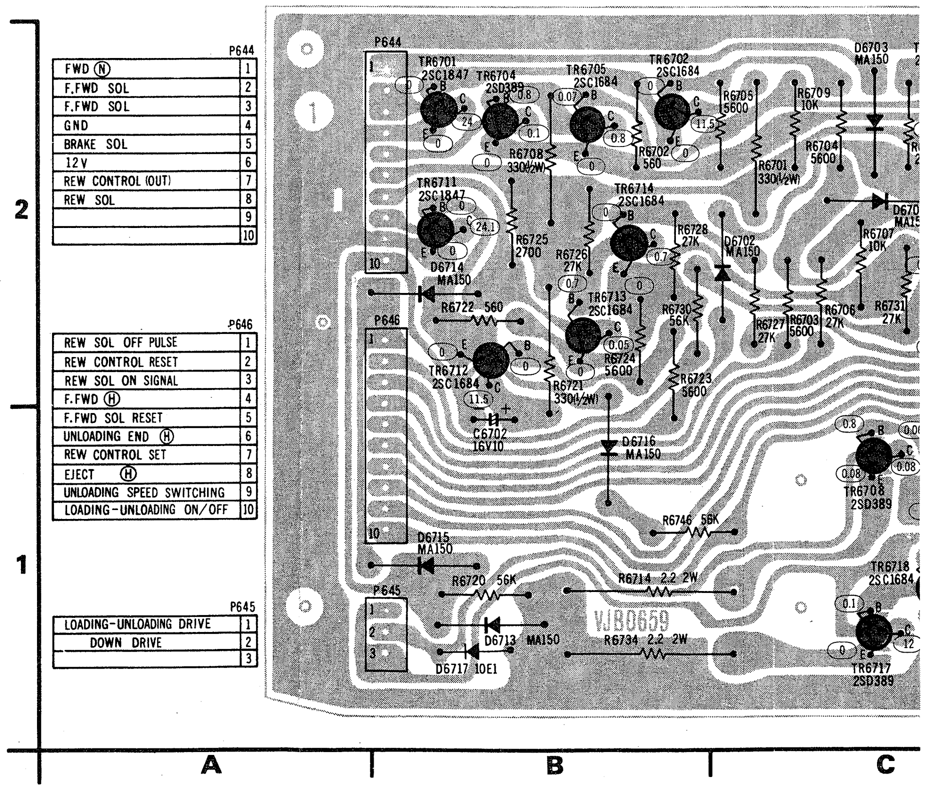
SERVO CONTROL (VEP0266C)	
TR201	A-4
TR202	B-4
TR203	B-5
TR204	B-4
TR205	C-3
TR206	C-2
TR207	C-2
TR208	C-1
TR209	C-1

SUB-TRANSPORT CONTROL CIRCUI


P644
FWD Ⓗ
F.FWD SOL.
F.FWD SOL.
GND
BRAKE SOL.
12V
REW CONTROL (OUT)
REW SOL
P645
LOADING UNLOADING DRIVE
DOWN DRIVE
P646
REW SOL OFF PULSE
REW CONTROL RESET
REW SOL ON SIGNAL
F FWD Ⓗ
FWD SOL RESET
UNLOADING END Ⓗ
REW CONTROL SET
EJECT Ⓗ
UNLOADING SPEED SWITCHING
LOADING UNLOADING ON OFF
TR6701 2SC1847
TR6702 2SC1684
TR6703 2SC1684
TR6704 2SD389
TR6705 2SC1684
TR6706 2SC1684
F.FWD SOL
BRAKE SOL
TR6711 2SC1847
TR6712 2SC1684
TR6713 2SC1684
TR6714 2SC1684
TR6715 2SC1684
REW SOL
REW CONTROL
2
1
A
B

The voltage values are measured in PLAYBACK (FOWARD) mode.

SUB-TRANSPORT CONTROL CIRCU


P644
FWD Ⓗ
F.FWD SOL
F.FWD SOL
GND
BRAKE SOL
12V
REW CONTROL (OUT)
REW SOL
P646
REW SOL OFF PULSE
REW CONTROL RESET
REW SOL ON SIGNAL
F.FWD Ⓗ
F.FWD SOL RESET
UNLOADING END Ⓗ
REW CONTROL SET
EJECT Ⓗ
UNLOADING SPEED SWITCHING
LOADING-UNLOADING ON/OFF
P645
LOADING-UNLOADING DRIVE
DOWN DRIVE
VJB0659
2
1
A
B
C

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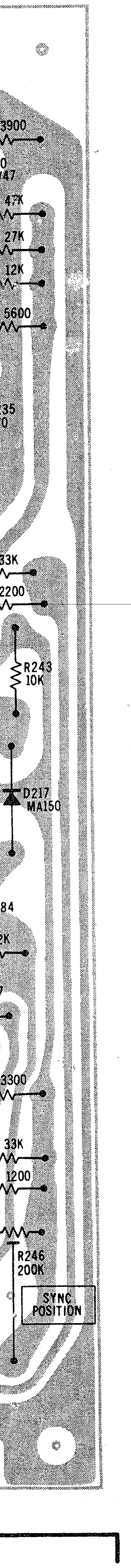
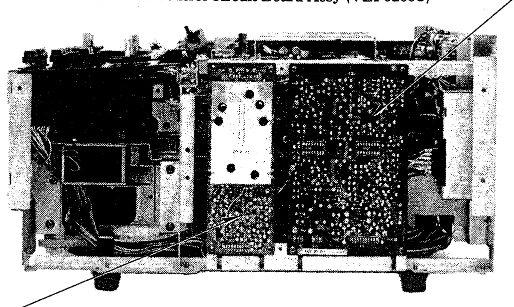
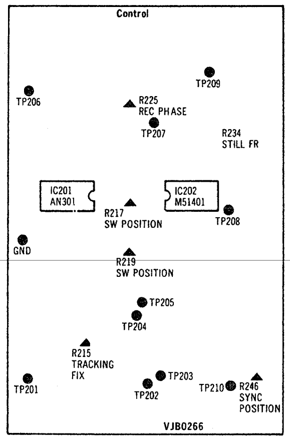
EP0266C)


3900
47
47K
27K
12K
5600
35
33K
2200
R243
10K
D217
MA150
84
2K
3300
33K
1200
R246
200K
SYNC
POSITION

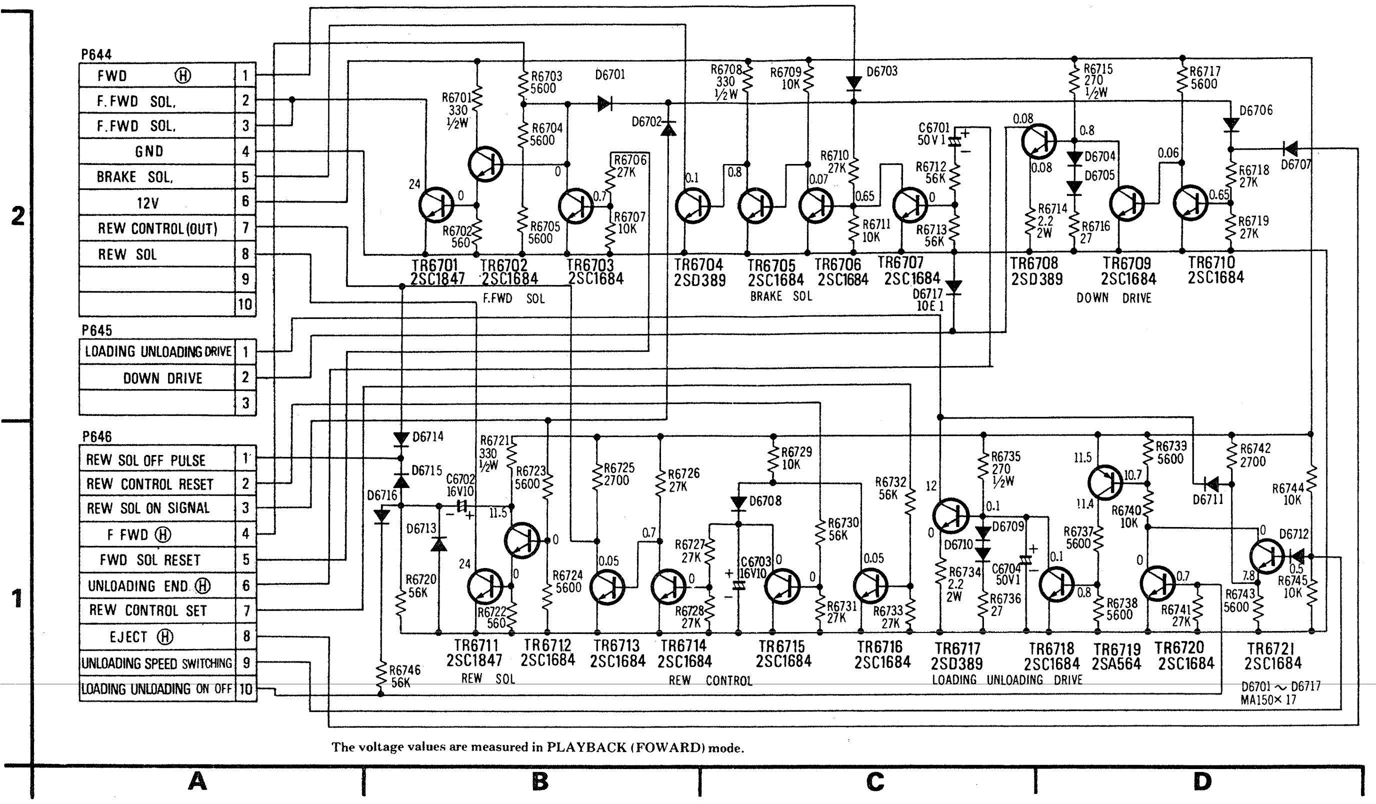

Servo Control Circuit Board Assy (VEP0266C)

Head Amp Circuit Board Assy (VEP0531A)


Control
TP206
TP209
R225
REC PHASE
TP207
R234
STILL FR
IC201
AN301
IC202
M51401
R217
SW POSITION
TP208
GND
R219
SW POSITION
TP205
TP204
R215
TRACKING
FIX
TP201
TP203
TP202
TP210
R246
SYNC
POSITION
VJB0266

SERVO CONTROL (VEP0266C)	
TR201	A-4
TR202	B-4
TR203	B-5
TR204	B-4
TR205	C-3
TR206	C-2
TR207	C-2
TR208	C-1
TR209	C-1

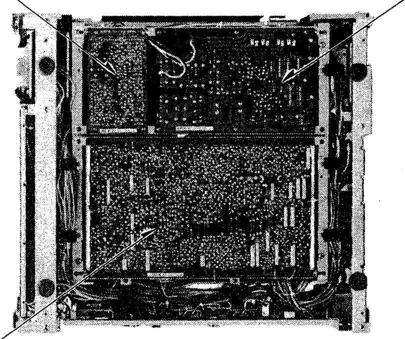
SUB-TRANSPORT CONTROL CIRCUIT SECTION (VEP0659A)


2
1
A
B
C
D
P644
FWD Ⓗ 1
F.FWD SOL. 2
F.FWD SOL. 3
GND 4
BRAKE SOL. 5
12V 6
REW CONTROL (OUT) 7
REW SOL 8
9
10
P645
LOADING UNLOADING DRIVE 1
DOWN DRIVE 2
3
P646
REW SOL OFF PULSE 1
REW CONTROL RESET 2
REW SOL ON SIGNAL 3
F FWD Ⓗ 4
FWD SOL RESET 5
UNLOADING END Ⓗ 6
REW CONTROL SET 7
EJECT Ⓗ 8
UNLOADING SPEED SWITCHING 9
LOADING UNLOADING ON OFF 10
R6701 330 ½W
R6702 560
R6703 5600
R6704 5600
R6705 5600
R6706 27K
R6707 10K
D6701
D6702
R6708 330 ½W
R6709 10K
D6703
R6710 27K
R6711 10K
C6701 50V1
R6712 56K
R6713 56K
D6717 10E1
R6715 270 ½W
R6714 2.2 2W
D6704
D6705
R6716 27
R6717 5600
D6706
D6707
R6718 27K
R6719 27K
TR6701 2SC1847
TR6702 2SC1684
F.FWD SOL
TR6703 2SC1684
TR6704 2SD389
TR6705 2SC1684
BRAKE SOL
TR6706 2SC1684
TR6707 2SC1684
TR6708 2SD389
TR6709 2SC1684
DOWN DRIVE
TR6710 2SC1684
D6714
D6715
D6716
D6713
C6702 16V10
R6720 56K
R6721 330 ½W
R6722 560
R6723 5600
R6724 5600
R6725 2700
R6726 27K
R6727 27K
R6728 27K
D6708
C6703 16V10
R6729 10K
R6730 56K
R6731 27K
R6732 56K
R6733 27K
R6735 270 ½W
D6709
D6710
R6734 2.2 2W
C6704 50V1
R6736 27
R6737 5600
R6738 5600
R6739 5600
R6740 10K
R6741 27K
D6711
R6742 2700
R6743 5600
R6744 10K
R6745 10K
D6712
R6746 56K
TR6711 2SC1847
REW SOL
TR6712 2SC1684
TR6713 2SC1684
TR6714 2SC1684
REW CONTROL
TR6715 2SC1684
TR6716 2SC1684
TR6717 2SD389
TR6718 2SC1684
LOADING UNLOADING DRIVE
TR6719 2SA564
TR6720 2SC1684
TR6721 2SC1684
D6701 ~ D6717
MA150× 17
24
0
0.7
0.1
0.8
0.07
0.65
0.08
0.06
11.5
0.05
12
10.7
11.4
7.8
0.5

The voltage values are measured in PLAYBACK (FOWARD) mode.

NOTES:

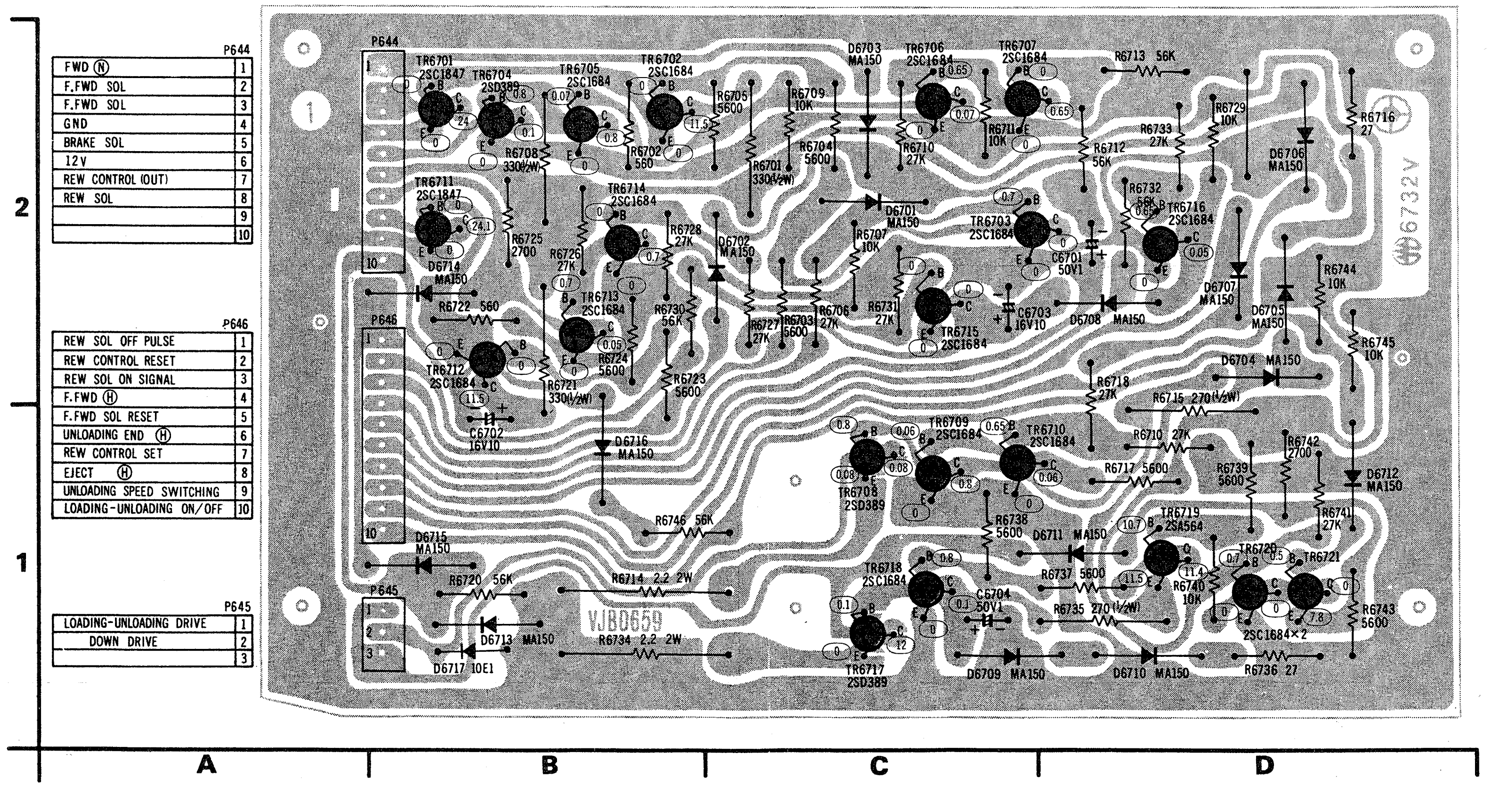
1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5%
   ALL CAPACITOR VALUES ARE IN MICROFARADS (μF)
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. ● CERAMIC CAPACITOR
8. T P TEST POINT
9. NON FLAMMABLE RESISTOR


Sub-transport Control Circuit Board Assy (VEP0659A)

Power Supply Circuit Board Assy (VEP0154B)

Transport Control Circuit Board Assy (VEP0656A1)

SUB-TRANSPORT CONTROL CIRCUIT BOARD (VEP0659A)


2
1
A
B
C
D
P644
FWD Ⓝ 1
F.FWD SOL 2
F.FWD SOL 3
GND 4
BRAKE SOL 5
12V 6
REW CONTROL (OUT) 7
REW SOL 8
9
10
P646
REW SOL OFF PULSE 1
REW CONTROL RESET 2
REW SOL ON SIGNAL 3
F.FWD Ⓗ 4
F.FWD SOL RESET 5
UNLOADING END Ⓗ 6
REW CONTROL SET 7
EJECT Ⓗ 8
UNLOADING SPEED SWITCHING 9
LOADING-UNLOADING ON/OFF 10
P645
LOADING-UNLOADING DRIVE 1
DOWN DRIVE 2
3
TR6701 2SC1847
TR6704 2SD389
TR6705 2SC1684
TR6702 2SC1684
TR6706 2SC1684
TR6707 2SC1684
TR6711 2SC1847
TR6714 2SC1684
TR6703 2SC1684
TR6716 2SC1684
TR6712 2SC1684
TR6713 2SC1684
TR6715 2SC1684
TR6709 2SC1684
TR6710 2SC1684
TR6708 2SD389
TR6718 2SC1684
TR6717 2SD389
TR6719 2SA564
TR6720
TR6721
2SC1684×2
D6703 MA150
D6701 MA150
D6702 MA150
D6706 MA150
D6707 MA150
D6705 MA150
D6704 MA150
D6708 MA150
D6714 MA150
D6716 MA150
D6715 MA150
D6713 MA150
D6717 10E1
D6711 MA150
D6712 MA150
D6709 MA150
D6710 MA150
R6713 56K
R6733 27K
R6729 10K
R6716 27
R6744 10K
R6745 10K
R6742 2700
R6741 27K
R6743 5600
R6739 5600
R6715 270(½W)
R6710 27K
R6717 5600
R6738 5600
R6737 5600
R6735 270(½W)
R6740 10K
R6736 27
R6734 2.2 2W
R6714 2.2 2W
R6720 56K
R6746 56K
R6722 560
R6721 330(½W)
R6725 2700
R6726 27K
R6724 5600
R6723 5600
R6730 56K
R6728 27K
R6727 27K
R6731 27K
R6732 56K
R6718 27K
R6712 56K
R6711 10K
R6708 330(½W)
R6709 10K
R6704 5600
R6705 5600
R6706
R6702 560
R6701 330(½W)
R6707 10K
C6701 50V1
C6702 16V10
C6703 16V10
C6704 50V1
VJB0659
6732V

SUB-TRANSPORT (VEP0659A)	
TR6701	B-2
TR6702	B-2
TR6703	C-2
TR6704	B-2
TR6705	B-2
TR6706	C-2
TR6707	C-2
TR6708	C-1
TR6709	C-1
TR6710	C-1
TR6711	B-2
TR6712	B-2
TR6713	B-2
TR6714	B-2
TR6715	C-2
TR6716	D-2
TR6717	C-1
TR6718	C-1
TR6719	D-1
TR6720	D-1
TR6721	D-1

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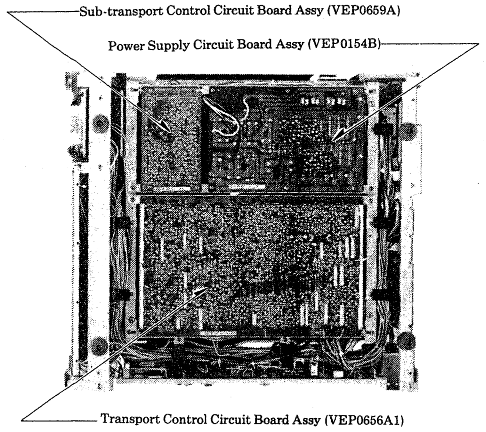
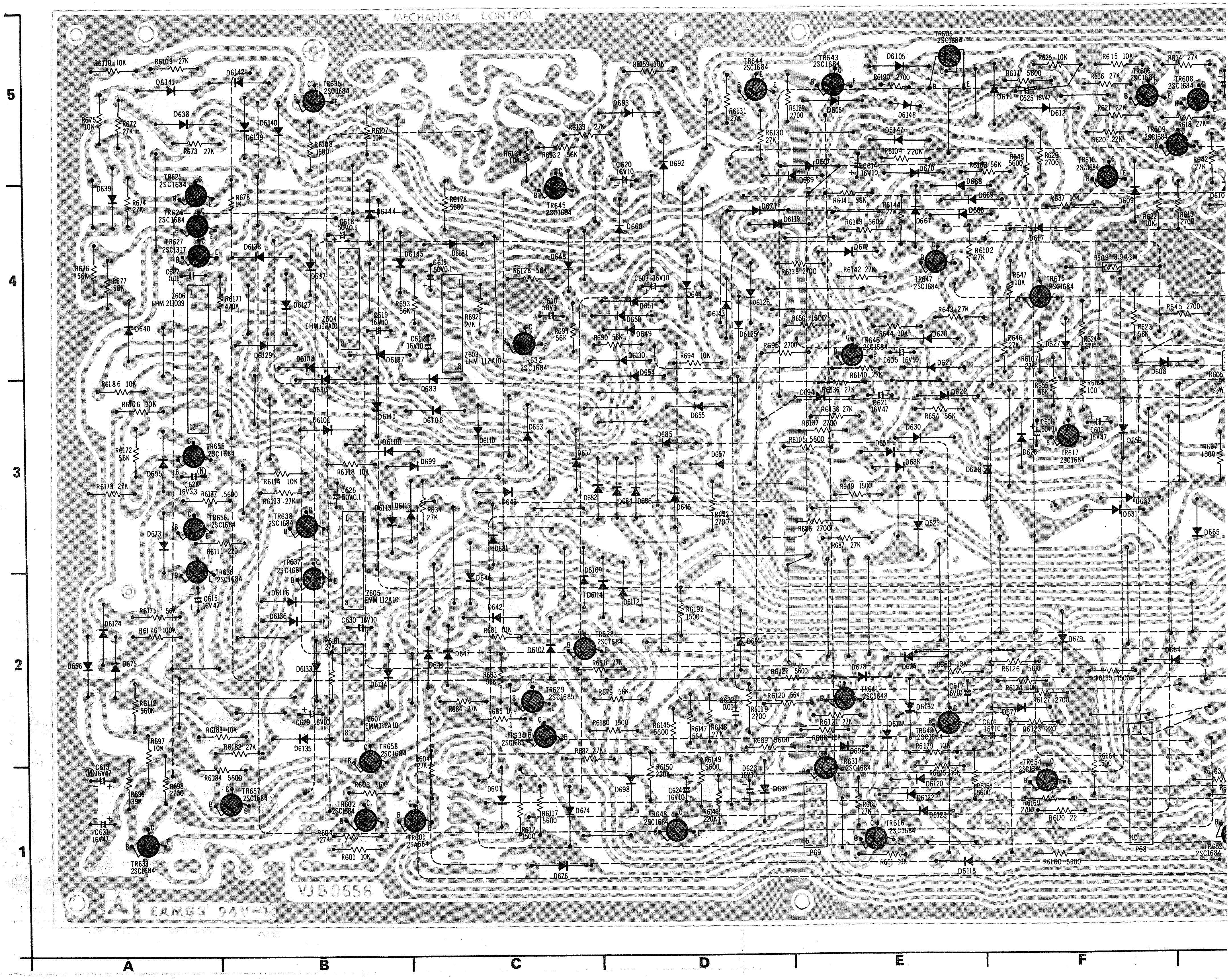
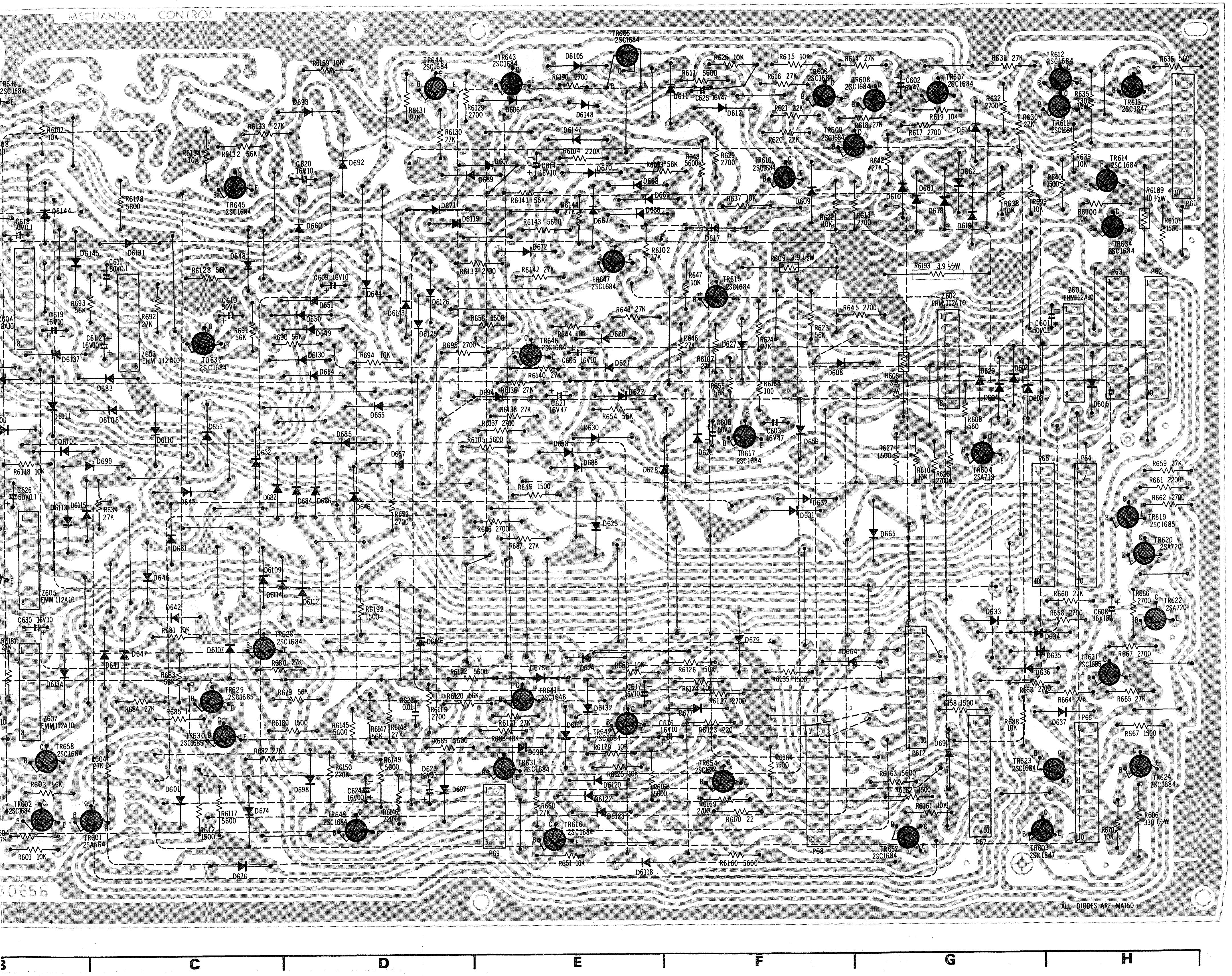
TRANSPORT CONTROL CIRCUIT BOARD (VEP0656A1)


Sub-transport Control Circuit Board Assy (VEP0659A)
Power Supply Circuit Board Assy (VEP0154B)
Transport Control Circuit Board Assy (VEP0656A1)

TRANSPORT (VEP0656A1)	
TR601	C-1
TR602	B-1
TR603	G-1
TR604	G-3
TR605	E-5
TR606	F-5
TR607	G-5
TR608	G-5
TR609	G-5
TR610	F-5
TR611	H-5
TR612	H-5
TR613	H-5
TR614	H-5
TR615	F-4
TR616	E-1
TR617	F-3
TR619	H-3
TR620	H-3
TR621	H-2
TR622	H-2
TR623	H-1
TR624	H-1
TR625	A-4
TR626	A-4
TR627	A-4
TR628	C-2
TR629	C-2
TR630	C-2
TR631	E-1
TR632	C-4
TR633	A-1
TR634	H-4
TR635	B-5
TR636	A-3
TR637	B-2
TR638	B-3
TR641	E-2
TR642	E-2
TR643	E-5
TR644	D-5
TR645	C-4
TR646	E-4
TR647	E-4
TR648	D-1
TR652	G-1
TR645	F-1
TR655	A-3
TR656	A-3
TR657	B-1
TR658	B-2


MECHANISM CONTROL
VJB0656
EAMG3 94V-1
5
4
3
2
1
A
B
C
D
E
F

ROL CIRCUIT BOARD (VEP0656A1)

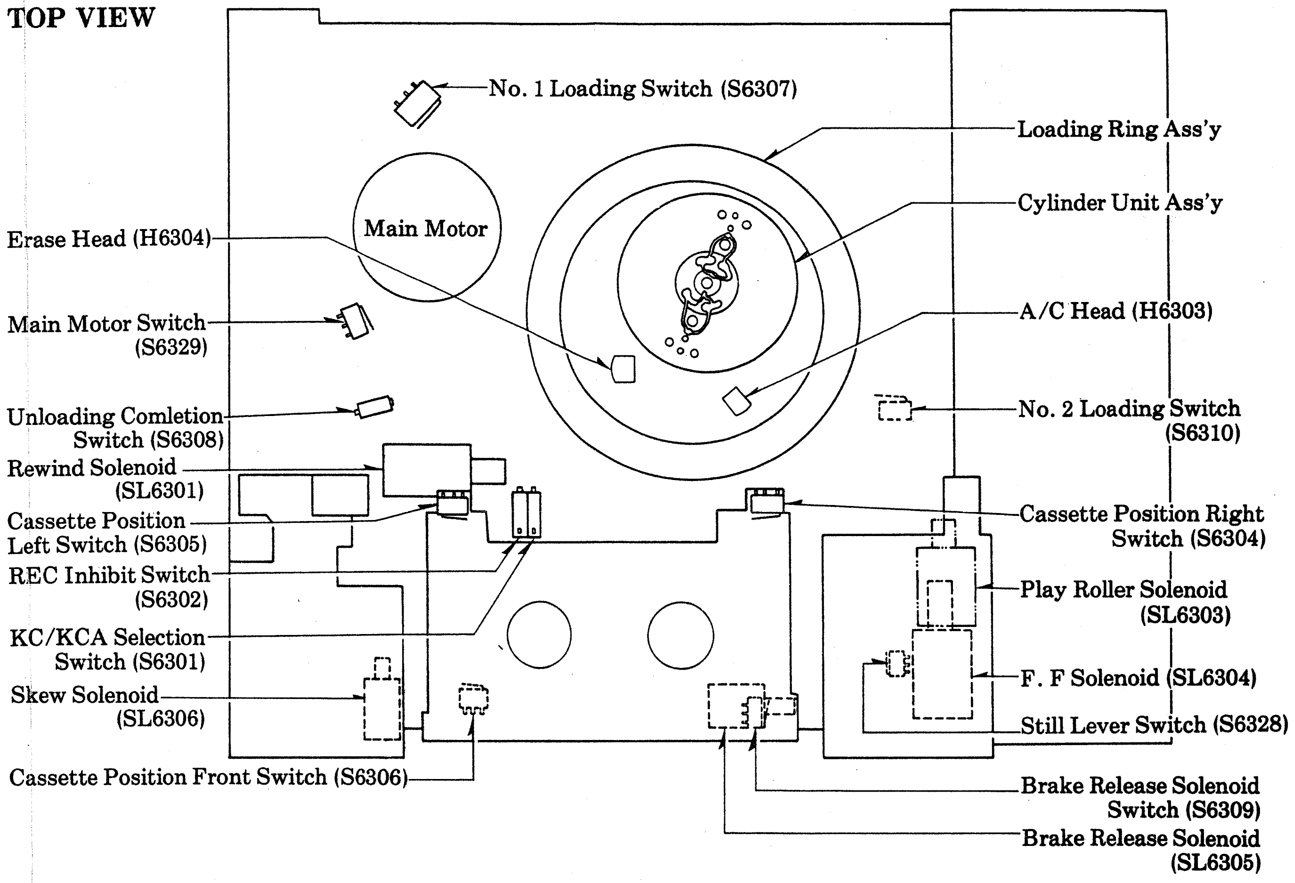

MECHANISM CONTROL
0656
ALL DIODES ARE MA150
B
C
D
E
F
G
H

(75) NV 9210

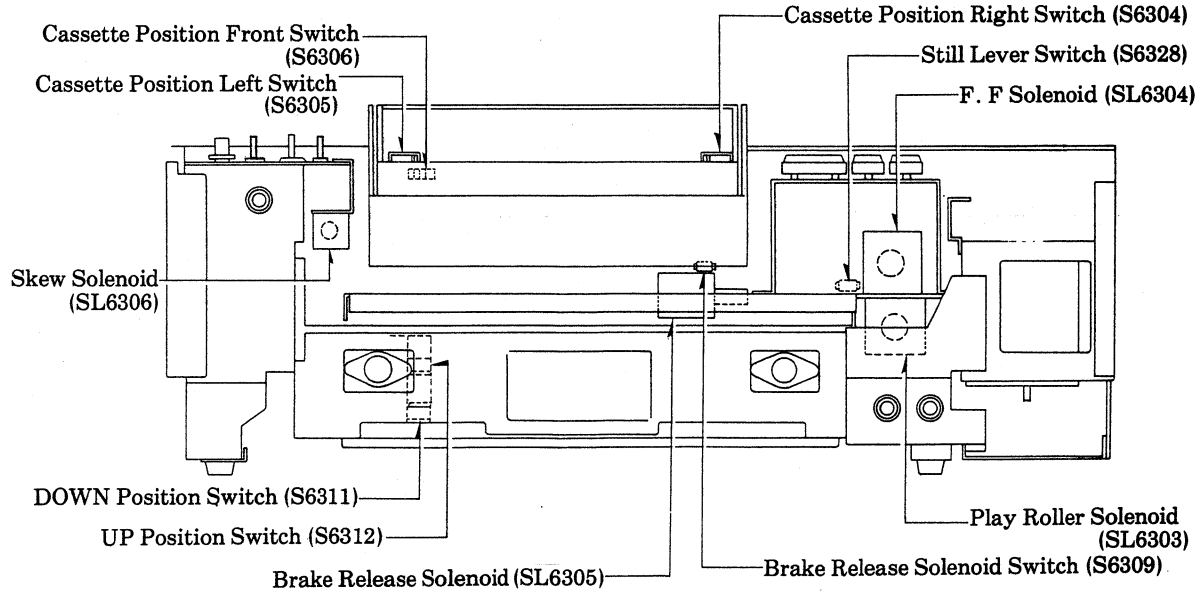
SWITCH

Ref. No.	Name of Switches	Functions
S6301	KC/KCA SW	This switch closes to mute the video during Pause mode when an ordinary cassette tape (KC type) is used.
S6302	REC INHIBIT SW	This switch closes to allow recording when using a cassette with a red button.
S6303	SAFETY SW	This switch closes if the tape becomes slack and places the unit into the Stop mode.
S6304 S6305 S6306	RIGHT SW LEFT SW FRONT SW	The left and right switches close and the front switch opens when the cassette is inserted correctly. If not, the elevator motor will not lower the cassette compartment.
S6307	NO. 1 LOADING SW	When this switch is turned off during unloading, the unloading speed is reduced.
S6308	UNLOADING SW	This switch closes when unloading is completed to stop the loading motor.
S6309	BRAKE SOL. SW	This switch opens when the brake release solenoid is activated. The voltage supplied to the brake release solenoid is reduced from the instantaneous operation voltage to the continuous operation voltage.
S6310	No. 2 LOADING SW	This switch closes when loading is completed to stop the loading motor.
S6311	DOWN SW	This switch activates when the cassette compartment fully lowers to stop the elevator motor.
S6312	UP SW	This switch opens when the cassette compartment fully raises to stop the elevator motor.
S6314	INPUT SIGNAL SELECTOR SW	This switch selects between TV and Line input signals.
S6315	REC SW	This switch closes when the Rec button is pressed and places the unit into the Rec mode.
S6316	PAUSE SW	This switch closes when the Pause button is pressed and places the unit into the Pause mode.
S6317	EJECT SW	This switch closes when the Eject button is pressed and places the unit into the Eject mode.
S6318	REW SW	This switch closes when the Rew button is pressed and placed the unit into the Rew mode.
S6319	FWD SW	This switch closes when the Fwd button is pressed and places the unit into the Fwd mode.
S6320	F.FWD SW	This switch closes when the F.Fwd button is pressed and places the unit into the F.Fwd mode.
S6321	STOP SW	This switch closes when the Stop button is pressed and places the unit into the Stop mode.
S6322	DUBBING SELECTOR SW	This switch is used to obtain better colour quality for dubbing or video editing and selects among SOURCE/PALY, NORMAL and EDITOR/REC.
S6323	MEMORY SW	This switch opens when the memory is set on, then the tape will automatically stop during the Rew or F.Fwd mode when the tape counter indicates "000".
S6324	COUNTER SW	This switch closes when the hundreds digit of the tape counter indicates "9" (between 900—999).
S6325	AUDIO MONITOR SELECT SW	This switch selects which audio channel is monitored during recording.
S6326	DUB SW	This switch closes when the Dub button is pressed and places the unit into the Dub mode.
S6327	TIMER REC SW	This switch selects between the Timer Rec ON and OFF.
S6328	STILL LEVER SW	This switch opens when the Still Lever is moved and moves the noise band out of the Still picture.
S6329	MAIN MOTOR SW	This switch closes when the loading arm is started and rotates the main motor.
S6337	MODE SELECT SW	This switch selects among B/W, AUDO and COLOUR during record and playback.

TOP VIEW


No. 1 Loading Switch (S6307)
Loading Ring Ass'y
Cylinder Unit Ass'y
Main Motor
Erase Head (H6304)
A/C Head (H6303)
Main Motor Switch (S6329)
Unloading Comletion Switch (S6308)
No. 2 Loading Switch (S6310)
Rewind Solenoid (SL6301)
Cassette Position Left Switch (S6305)
Cassette Position Right Switch (S6304)
REC Inhibit Switch (S6302)
Play Roller Solenoid (SL6303)
KC/KCA Selection Switch (S6301)
F. F Solenoid (SL6304)
Skew Solenoid (SL6306)
Still Lever Switch (S6328)
Cassette Position Front Switch (S6306)
Brake Release Solenoid Switch (S6309)
Brake Release Solenoid (SL6305)

FRONT VIEW


Cassette Position Right Switch (S6304)
Cassette Position Front Switch (S6306)
Still Lever Switch (S6328)
Cassette Position Left Switch (S6305)
F. F Solenoid (SL6304)
Skew Solenoid (SL6306)
DOWN Position Switch (S6311)
Play Roller Solenoid (SL6303)
UP Position Switch (S6312)
Brake Release Solenoid (SL6305)
Brake Release Solenoid Switch (S6309)

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TRANSPORT CONTROL CIRCUIT TERMINALS

Terminal No.	Name	Operation
P61-1	REW CONTROL IN	High, approximately 1 sec to rewind the tape, when unloading is completed.
P61-2	ROLLER SOL (SL6303)	Low, during the F. Fwd and Pause (Rec) modes, the roller solenoid is activated.
P61-3	FWD Ⓗ	High, during the Fwd mode.
P61-5	F.FWD SOL	Low, during the F.Fwd mode, the F.Fwd solenoid is activated.
P61-8 P61-9	AUDIO CH1 MUTING AUDIO CH2 MUTING	Low, during the Dub and Rec modes, the audio is on.
P61-10	VIDEO MUTING	Low, during the Fwd and Rec modes, the video is on.
P62-1	NOT REC 12 V	+12 V, except in the Rec mode.
P62-2	STANDBY LAMP	low, during standby, to light the standby lamp.
P62-3	REC SW (S6315)	Low, when the Rec button is pressed.
P62-4	STILL LEVER SW (S6328)	High, when the still lever is moved during the Pause or Fwd mode.
P62-6	DUB SW (S6326)	Low, when the Dub button is pressed.
P62-7	DUB LAMP (D6311)	Low, during the Dub mode, to light the Dub lamp.
P62-8	REC LAMP (D6310)	Low, during the Rec mode, to light the Rec lamp.
P63-3	REC SW (Remote Control Unit)	Low, when the Rec button on the remote control unit is pressed.
P63-6	DUB SW (Remote Control Unit)	Low, when the external dubbing switch is connected to terminal 6 on the 34 pin connector and the dubbing switch is pressed.
P63-8	DUB LAMP (Remote Control Unit)	Low, when the external dubbing switch is pressed, lights the dubbing lamp.
P63-9	REC LAMP (Remote Control Unit)	Low, during the Rec mode, to light the Rec lamp.
P64-1	EJECT SW (S6317)	Low, when the Eject button is pressed.
P64-2	F.FWD SW (S6320)	Low, when the F.Fwd button is pressed.
P64-3	PAUSE SW (S6316)	Low, when the Pause button is pressed.
P64-4	PAUSE LAMP	Low, in the pause mode, lights the Pause lamp.
P64-5	FWD SW (S6319)	Low, when the Fwd button is pressed.
P64-6	FWD LAMP (D6314)	Low, in the Fwd mode, lights the Fwd lamp.
P64-7	F.FWD LAMP (D6315)	Low, in the F.Fwd mode, lights the F.Fwd lamp.
P64-8	REW SW (S6318)	Low, when the Rew button is pressed.
P64-9	REW LAMP (D6313)	Low, in the Rew mode, lights the Rew lamp.
P64-10	STOP SW (S6321)	Low, when the Stop button is pressed.
P65-1	F.FWD SW (Remote Control Unit)	Low, when the F.Fwd button on the remote control unit is pressed.
P65-2	PAUSE SW (Remote Control Unit)	Low, when the Pause button on the remote control unit is pressed.
P65-3	PAUSE LAMP (Remote Control Unit)	Low, in the Pause mode, lights the Pause lamp on the remote control unit.
P65-4	FWD SW (Remote Control Unit)	Low, when the Fwd button on the remote control unit is pressed.
P65-5	FWD LAMP (Remote Control Unit)	Low, in the Fwd mode, lights the Fwd lamp on the remote control unit.
P65-6	F.FWD LAMP (Remote Control Unit)	Low, in the F.Fwd mode, lights the F.Fwd lamp on the remote control unit.
P65-7	REW SW (Remote Control Unit)	Low, when the Rew button on the remote control unit is pressed.
P65-8	REW LAMP (Remote Control Unit)	Low, in the Rew mode, lights the Rew lamp on the remote control unit.
P65-9	STOP SW (Remote Control Unit)	Low, when the Stop button on the remote control unit is pressed.
P65-10	STANDBY LAMP	Low, during standby mode.
P66-1	AUDIO CH1 R-P 24 V	+24 V is supplied to terminal P411-1 on the Audio Circuit Board (VEP0435A1) through P66-1 in the Rec and Audio Dubbing modes.
P66-2	AUDIO CH2 R-P 24 V	+24 V is supplied to the terminal P411-2 on the Audio Circuit Board (VEP0435A1), through P66-2 in the Rec mode.
P66-3	VIDEO R-P Ⓛ	Low, during the Rec mode.
P66-4	AUDIO CH1 E-E Ⓛ	Low, during the E-E mode.
P66-5	AUDIO CH2 E-E Ⓛ	Low, during the E-E mode.
P66-6	VIDEO E-E Ⓛ	Low, during the E-E mode, the video is on.
P66-7	HEAD AMP REC 12 V	+12 V is obtained during the Rec mode for the Rec Amp.
P66-8	REC INHIBIT SW (S6302)	Low, when a cassette with the red button is used, allows recording.
P66-9	CTL REC 12 V	+12 V is obtained during the Rec mode for the Servo Control Circuit
P66-10	SKEW SOL (SL6306)	Low, during the Rec mode, allows the skew solenoid (SL6306) is activated.
P67-1	NO. 2 LOADING SW (S6310)	Low, stops the loading motor when loading is completed.
P67-2	ELEVATOR RELAY (RY6301)	Low, during the Eject mode, activates the elevator relay.
P67-3	PAUSE Ⓛ	Low, during the Pause mode, place the unit in the Pause mode.
P67-6	LOADING RELAY (RY6302)	Low, during the Loading mode, the loading motor relay is activated.
P67-7	DOWN SW (S6311)	Low, stops the elevator motor (M6301) when the cassette compartment fulley lowers.
P67-9	TIMER PLAY (S6327)	High, when the timer selector is placed in Timer Play mode.
P67-10	TIMER REC (S6327)	High, when the timer selector is placed in the Timer Recording mode.

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Terminal No.	Name	Operation
P68-1	SUPPLY PHOTO TR (TR6303)	Low, when translucent tape is detected.
P68-2	KC/KCA SW (S6301)	Low, mutes the video during the Pause mode, when using an ordinary cassette tape (KC type).
P68-3	NO. 1 LOADING SW (S6307)	High, when the No. 1 loading switch is turned off during the Unloading mode, to reduce the loading motor's speed.
P68-4	SAFETY SW (S6303)	Low, if the tape becomes slack, places the unit in the Stop mode.
P68-5	MAIN MOTOR SW (S6329)	Low, the main motor rotates.
P68-6	CASSETTE IN	Low, if the cassette is inserted correctly, the left switch (S6305) is on.
P68-7	CASSETTE POSITION	Low, if the cassette is inserted correctly, the right switch (S6304) is on.
P68-8	SUPPLY PHOTO LAMP (PL6301)	Low, when the supply photo detection lamp is open to stop the unit.
P69-1	COUNTER SW (S6324)	Low, when the tape counter's hundreds digit indicates "9" (900—999).
P69-2	MEMORY SW (S6323)	Low, when the memory switch is off.
P69-3	UP SW (S6312)	High, when the cassette compartment fully raises to stop the elevator motor.
P69-4	MAIN MOTOR RELAY (RY6303)	Low, the main motor relay activates.
P69-5	UNLOADING SW (S6308)	Low, when unloading is completed, the loading motor stops.
P612-1	UNLOADING SPEED SW	High, the loading motor speed slows down when the No. 1 loading switch is trned off during the Unloading mode.
P612-2	REW CONTROL RESET	High, during the F.Fwd mode, or when the translucent tape is detected.
P612-3	REW SOL. ON SIGNAL	High, the rewind solenoid is energized.
P612-4	F.FWD Ⓗ	High, during the F.Fwd mode.
P612-5	F.FWD SOL. RESET	High, the F.Fwd and brake release solenoids are de-energized.
P612-6	UNLOADING END Ⓗ	High, when unloading is completed.
P612-7	REW CONTROL SET	High, during the Fwd mode and when unloading is completed.
P612-8	EJECT Ⓗ	High, during Eject mode.
P612-9	REW SOL. OFF PULSE	Momentary high, when the mode is changed from Rew to Stop.
P612-10	LOADING UNLOADING ON OFF	Low, the loading motor rotates.

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TRANSPORT CONTROL CIRCUIT

TRANSISTOR REF. NO. MODE	TR-601			TR-602			TR-603			TR-604			TR-605			TR-606			TR-607			TR-608		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
REC	12.0	0	11.4	0	11.4	0.3	0	0.1	0.8	11.5	11.4	10.8	0	11.2	0	0	0.1	0.8	0	11.0	0	0	0.1	0.1
PLAY	12.0	12.0	11.3	0	0.1	0.7	0	24.0	0	11.9	0	11.9	0	10.6	0	0	0.1	0.8	0	11.0	0	0	0.1	0.1
FF	12.0	12.0	11.3	0	0.1	0.7	0	24.0	0	11.9	0	11.9	0	10.6	0	0	0.1	0.8	0	11.0	0	0	0.1	0.1
REW	12.0	12.0	11.3	0	0.1	0.7	0	24.0	0	11.9	0	11.9	0	10.6	0	0	0.1	0.8	0	11.0	0	0	0.1	0.1

TRANSISTOR REF. NO. MODE	TR-609			TR-610			TR-611			TR-612			TR-613			TR-614			TR-615			TR-616		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
REC	0.8	0.1	0.1	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	24.1	0	0	0.1	0.8	0	0.1	0.8	0	0.1	0.8
PLAY	0.8	0.1	0.1	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	24.1	0	0	0.1	0.8	0	0.1	0.8	0	0.1	0.8
FF	0.8	0.1	0.1	0	0.1	0.7	0.1	1.7	0.5	0.9	1.0	1.7	0.1	0.15	0.9	0.1	9.6	0.15	0	0.1	0.8	0	0.1	0.8
REW	0.8	0.1	0.1	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	24.1	0	0	24.1	0	0	0.1	0.8	0	0.1	0.8

TRANSISTOR REF. NO. MODE	TR-617			TR-619			TR-620			TR-621			TR-622			TR-623			TR-624			TR-625		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
REC	0	0.15	0.8	4.5	22.5	5.0	23.0	22.5	22.0	0	0.1	0.8	23.0	23.0	22.0	0	0.1	0.8	0	0.1	0.8	0	0.1	0.7
PLAY	0	11.0	0	0	24.0	0	24.0	0	24.0	0	24.0	0	24.0	0	24.0	0	11.5	0	0	10.0	0	0	0.1	0.7
FF	0	11.0	0.8	0	24.0	0	24.0	0.2	24.0	0	24.0	0	24.0	0	24.0	0	11.5	0	0	10.0	0	0	0.7	0.1
REW	0	11.0	0	0	24.0	0	24.0	0.4	24.0	0	24.0	0	24.0	0	24.0	0	11.5	0	0	10.0	0	0	0.7	0.1

TRANSISTOR REF. NO. MODE	TR-626			TR-627			TR-628			TR-629			TR-630			TR-631			TR-632			TR-633		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
REC	0	12.0	0	0	12.0	0	0	10.0	0	0.8	0.8	1.4	0	0.8	0.8	0	0.1	0.8	0	0.1	0.8	0	11.5	0
PLAY	0	12.0	0	0	12.0	0	0	10.0	0	0.8	0.8	1.4	0	0.8	0.8	0	0.1	0.8	0	0.1	0.8	0	11.5	0
FF	0	12.0	0.2	0	12.0	0	0	0.1	0.7	0.8	0.8	1.4	0	0.8	0.8	0	0.1	0.8	0	10.5	0	0	0.1	0.8
REW	0	12.0	0.2	0	12.0	0	0	0.1	0.7	0.8	0.8	1.4	0	0.8	0.8	0	0.1	0.8	0	10.5	0	0	0.1	0.8

TRANSISTOR REF. NO. MODE	TR-634			TR-635			TR-636			TR-637			TR-638			TR-641			TR-642			TR-643		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
REC	0	0.1	0.8	0	0.1	0.7	0	11.5	0	0	11.5	0	0	0.8	0	0	0.1	0.8	0	11.5	0	0	0.2	0.9
PLAY	0	0.1	0.8	0	0.1	0.7	0	11.5	0	0	11.5	0	0	0.8	0	0	0.1	0.8	0	11.5	0	0	0.2	0.9
FF	0	11.4	0.1	0	0.9	0.3	0	11.5	0	0	11.5	0	0	0.8	0	0	0.1	0.8	0	11.5	0	0	12.0	0.1
REW	0	11.4	0.1	0	8.9	0.2	0	11.5	0	0	11.5	0	0	0.4	0	0	0.1	0.8	0	11.5	0	0	12.0	0.1

TRANSISTOR REF. NO. MODE	TR-644			TR-645			TR-646			TR-647			TR-648			TR-652			TR-654			TR-655		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
REC	0	0.9	0.2	0	0	0.7	0	0.1	0.8	0	9.7	0.2	0	0.1	0.8	0	9.0	0	0	0.1	0.8	0	0.1	0.7
PLAY	0	0.9	0.2	0	0	0.7	0	0.1	0.8	0	8.7	0.2	0	0.1	0.8	0	9.0	0	0	0.1	0.8	0	0.1	0.7
FF	0	0.1	0.8	0	0	0.1	0	0.1	0.8	0	0.1	0.7	0	0.1	0.8	0	9.0	0	0	0.1	0.8	0	0.1	0.7
REW	0	0.1	0.8	0	4.2	0.1	0	0.1	0.8	0	0.1	0.7	0	11.5	0	0	9.0	0	0	0.1	0.8	0	0.1	0.7

TRANSISTOR REF. NO. MODE	TR-656			TR-657			TR-658			Z-601							Z-602							Z-603						
	E	C	B	E	C	B	E	C	B	1	2	3	4	5	7	8	1	2	3	4	5	7	8	1	2	3	4	5	7	8
REC	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	0.8	11.0	8.0	11.5	11.5	0.1	0	0.1	0.2	0.1	12.0	0.1	8.5	0	0.2	0.1	0.3	11.5	0.1	8.5
PLAY	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	0.8	11.0	0.8	12.0	12.0	0.1	0	0.8	11.0	0.8	12.0	12.0	0.1	0	0.2	0.1	0.3	11.5	0.1	8.5
FF	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	0.8	11.0	9.4	12.0	12.0	0.1	0	0.8	0	7.5	12.0	12.0	0.1	0	0.7	10.5	0	11.5	11.5	0.1
REW	0	0.1	0.7	0	0.1	0.8	0	12.0	0.1	0	0.8	0	9.4	12.0	12.0	0.1	0	0.8	11.0	7.5	12.0	12.0	0.1	0	0.7	10.5	7.5	11.5	11.5	0.1

TRANSISTOR REF. NO. MODE	Z-604							Z-605							Z-606							Z-607							
	1	2	3	4	5	7	8	1	2	3	4	5	7	8	1	2	4	7	8	10	12	1	2	3	4	5	7	8	
REC	0	0.8	10.5	8.0	11.5	11.5	0.1	0	0.8	10.5	8.0	11.5	11.5	0.1	0	2.0	11.5	10.0	11.5	0.1	0	0	0.8	10.5	0	11.5	9.8	0.1	
PLAY	0	0.8	10.5	8.0	11.5	11.5	0.1	0	0.8	10.5	8.0	11.5	11.5	0.1	0	2.0	11.5	10.0	11.5	0.1	0	0	0.8	10.5	0	11.5	9.8	0.1	
FF	0	0.45	0	0.45	11.5	0.1	8.5	0	0.8	10.5	8.0	11.5	11.5	0.1	0	0	11.5	3.0	11.5	10.0	0	0	0.8	10.5	0	11.5	9.8	0.1	
REW	0	0.7	10.5	8.0	11.5	11.5	0.1	0	0.4	0.8	0.4	11.5	0.1	8.5	0	2.0	11.5	10.0	11.5	0.1	0	0	0.8	10.5	0	11.5	9.8	0.1	

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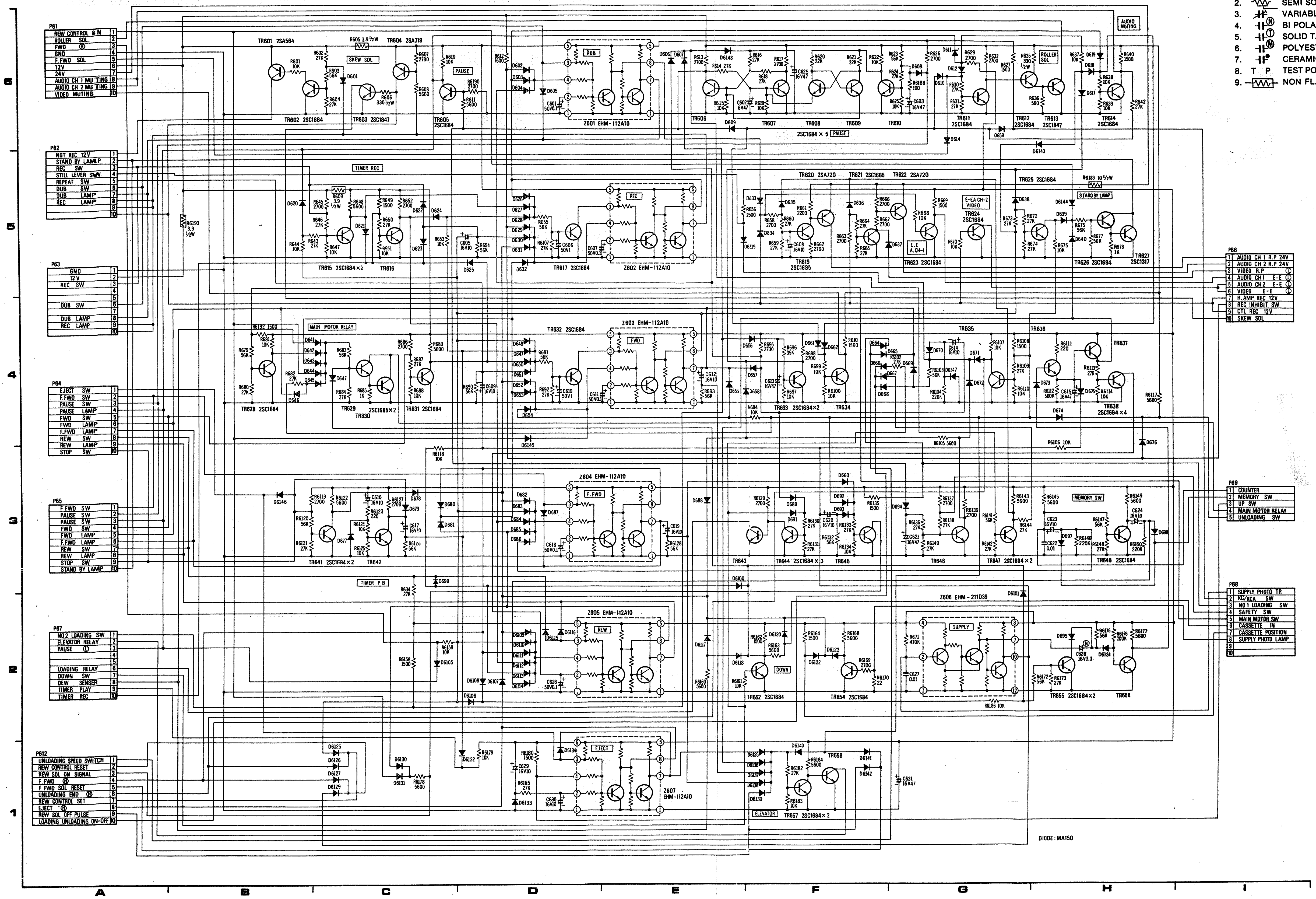
TRANSPORT CONTROL CIRCUIT SECTION (VEP0656A1)


P61
REW CONTROL Ⓗ N
ROLLER SOL.
FWD Ⓗ
GND
F.FWD SOL
12V
24V
AUDIO CH 1 MUTING
AUDIO CH 2 MUTING
VIDEO MUTING
P62
NOT REC 12V
STAND BY LAMP
REC SW
STILL LEVER SW
REPEAT SW
DUB SW
DUB LAMP
REC LAMP
P63
GND
12V
REC SW
DUB SW
DUB LAMP
REC LAMP
P64
EJECT SW
F.FWD SW
PAUSE SW
PAUSE LAMP
FWD SW
FWD LAMP
F.FWD LAMP
REW SW
REW LAMP
STOP SW
P65
F FWD SW
PAUSE SW
PAUSE SW
FWD SW
FWD LAMP
F.FWD LAMP
REW SW
REW LAMP
STOP SW
STAND BY LAMP
P67
NO2 LOADING SW
ELEVATOR RELAY
PAUSE Ⓛ
LOADING RELAY
DOWN SW
DEW SENSER
TIMER PLAY
TIMER REC
P612
UNLOADING SPEED SWITCH
REW CONTROL RESET
REW SOL ON SIGNAL
F.FWD Ⓗ
F.FWD SOL RESET
UNLOADING END Ⓗ
REW CONTROL SET
EJECT Ⓗ
REW SOL OFF PULSE
LOADING UNLOADING ON-OFF
P66
AUDIO CH 1 R.P 24V
AUDIO CH 2 R.P 24V
VIDEO R.P Ⓛ
AUDIO CH1 E-E Ⓛ
AUDIO CH2 E-E Ⓛ
VIDEO E-E Ⓛ
H.AMP REC 12V
REC INHIBIT SW
CTL REC 12V
SKEW SOL
P69
COUNTER
MEMORY SW
UP SW
MAIN MOTOR RELAY
UNLOADING SW
P68
SUPPLY PHOTO TR
KC/KCA SW
NO1 LOADING SW
SAFETY SW
MAIN MOTOR SW
CASSETTE IN
CASSETTE POSITION
SUPPLY PHOTO LAMP
SKEW SOL
PAUSE
DUB
AUDIO MUTING
ROLLER SOL
TIMER REC
REC
STAND BY LAMP
MAIN MOTOR RELAY
FWD
F.FWD
MEMORY SW
TIMER P B
REW
DOWN
SUPPLY
EJECT
ELEVATOR
Z601 EHM-112A10
Z602 EHM-112A10
Z603 EHM-112A10
Z604 EHM-112A10
Z605 EHM-112A10
Z606 EHM-211D39
Z607 EHM-112A10
DIODE: MA150
6
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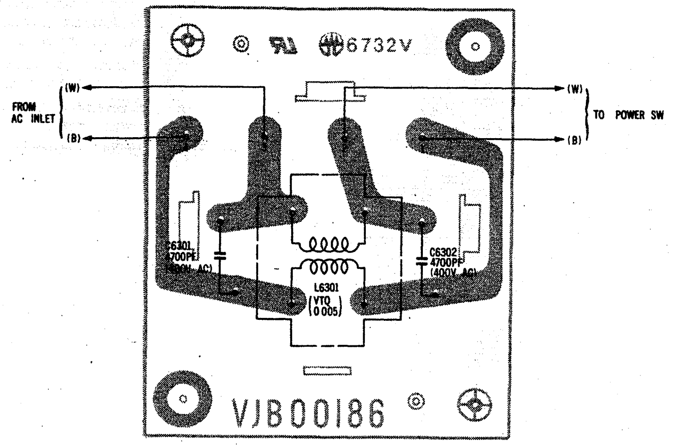
I

NOTES:

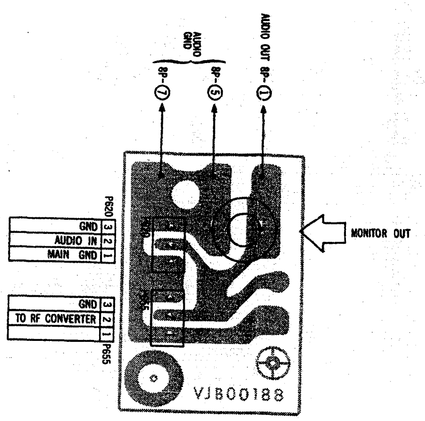
1. UNLESS OTHERWISE SPECIFIED ALL RESISTOR VALUES ARE IN OHMS (Ω) 1/8W ±5% ALL CAPACITOR VALUES ARE IN MICROFARADS (μF)
2. SEMI SOLID ADJUSTMENT RESISTOR
3. VARIABLE CAPACITOR
4. Ⓝ BI POLARITY ALUMINUM CAPACITOR
5. Ⓣ SOLID TANTALUM CAPACITOR
6. Ⓜ POLYESTER FILM CAPACITOR
7. ● CERAMIC CAPACITOR
8. T P TEST POINT
9. NON FLAMMABLE RESISTOR

(80) NV 9210

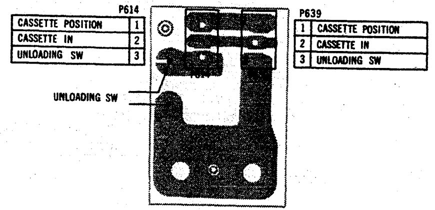
LINE FILTER CIRCUIT BOARD (VJB00186)


6732V
FROM AC INLET
(W)
(B)
TO POWER SW
(W)
(B)
C6301 4700PF (400V AC)
C6302 4700PF (400V AC)
L6301 (VTQ 0 005)
VJB00186

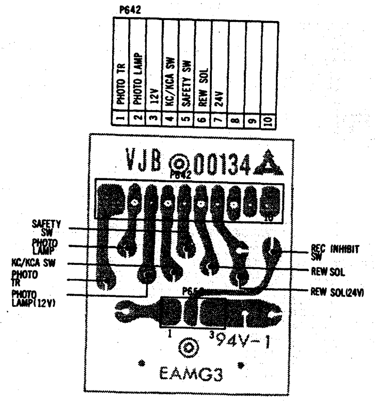
AUDIO MONITOR CIRCUIT BOARD (VJB00188)


AUDIO GND
AUDIO OUT 8P-①
8P-⑤
8P-⑦
P620
GND 3
AUDIO IN 2
MAIN GND 1
GND 3
TO RF CONVERTER 2
1
P655
MONITOR OUT
VJB00188

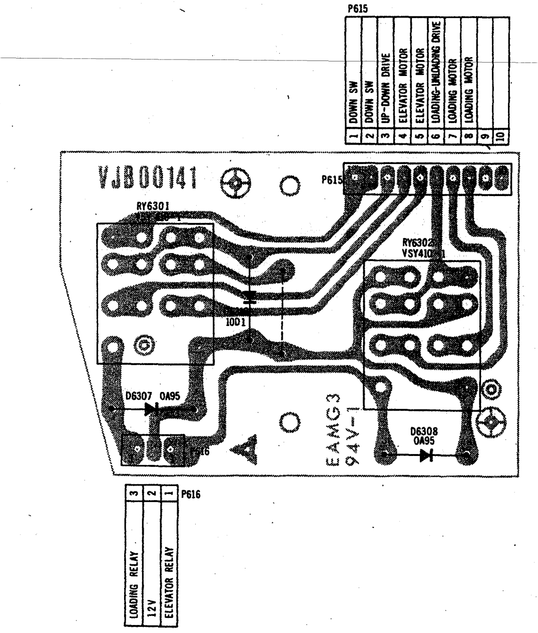
CASSETTE COMPARTMENT INTER-CONNECTION CIRCUIT BOARD (VJB00138)


P614
CASSETTE POSITION 1
CASSETTE IN 2
UNLOADING SW 3
P639
1 CASSETTE POSITION
2 CASSETTE IN
3 UNLOADING SW
UNLOADING SW

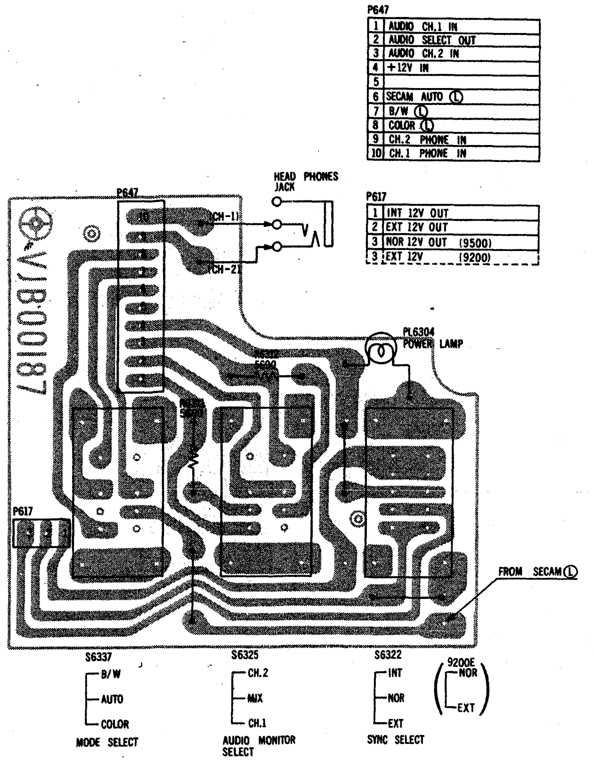
REC INHIBIT INTER-CONNECTION CIRCUIT BOARD (VJB00134)


P642
1 PHOTO TR
2 PHOTO LAMP
3 12V
4 KC/KCA SW
5 SAFETY SW
6 REW SOL
7 24V
8
9
10
VJB 00134
P642
SAFETY SW
PHOTO LAMP
KC/KCA SW
PHOTO TR
PHOTO LAMP(12V)
REC INHIBIT SW
REW SOL
REW SOL(24V)
94V-1
EAMG3

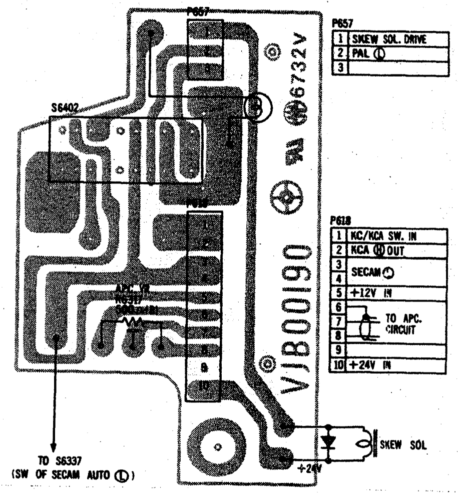
LOADING ELEVATOR RELAY INTER-CONNECTION CIRCUIT BOARD (VEP00141A)


P615
1 DOWN SW
2 DOWN SW
3 UP-DOWN DRIVE
4 ELEVATOR MOTOR
5 ELEVATOR MOTOR
6 LOADING-UNLOADING DRIVE
7 LOADING MOTOR
8 LOADING MOTOR
9
10
VJB00141
P615
RY6301
RY6302 VSY410
10D1
D6307 OA95
D6308 OA95
EAMG3 94V-1
P616
3 LOADING RELAY
2 12V
1 ELEVATOR RELAY
P616

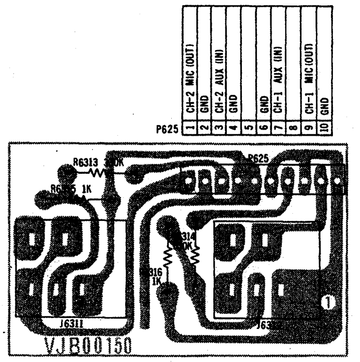
COLOUR-B/W SW BOARD (VJB00187)


P647
1 AUDIO CH.1 IN
2 AUDIO SELECT OUT
3 AUDIO CH.2 IN
4 +12V IN
5
6 SECAM AUTO Ⓛ
7 B/W Ⓛ
8 COLOR Ⓛ
9 CH.2 PHONE IN
10 CH.1 PHONE IN
HEAD PHONES JACK
P617
1 INT 12V OUT
2 EXT 12V OUT
3 NOR 12V OUT (9500)
3 EXT 12V (9200)
P647
CH-1
CH-2
VJB00187
PL6304 POWER LAMP
5600
P617
FROM SECAM Ⓛ
S6337
B/W
AUTO
COLOR
MODE SELECT
S6325
CH.2
MIX
CH.1
AUDIO MONITOR SELECT
S6322
INT
NOR
EXT
SYNC SELECT
9200E
NOR
EXT

TV SYSTEM SELECT SW BOARD (VJB00190)


P657
P657
1 SKEW SOL. DRIVE
2 PAL Ⓛ
3
S6402
6732V
P618
1 KC/KCA SW. IN
2 KCA Ⓗ OUT
3 SECAM Ⓛ
4
5 +12V IN
6 TO APC. CIRCUIT
7
8
9
10 +24V IN
APC. VR
VJB00190
SKEW SOL
+24V
TO S6337 (SW OF SECAM AUTO Ⓛ)

MIC TERMINAL CIRCUIT BOARD (VJB00150)


P625
1 CH-2 MIC (OUT)
2 GND
3 CH-2 AUX (IN)
4 GND
5
6 GND
7 CH-1 AUX (IN)
8
9 CH-1 MIC (OUT)
10 GND
R6313
R6315 1K
P625
R6314
R6316 1K
J6311
J6312
VJB00150

REED SW CIRCUIT BOARD (VJB00144)

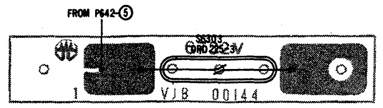
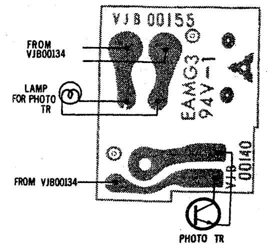
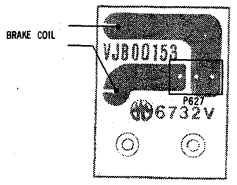
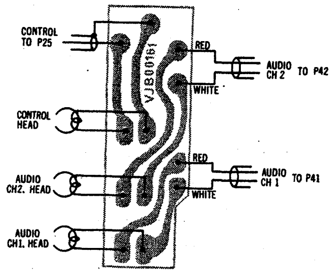

FROM P642-⑤
S6303
1
VJB 00144

PHOTO TRANSISTOR INTER-CONNECTION CIRCUIT BOARD (VJB00140)

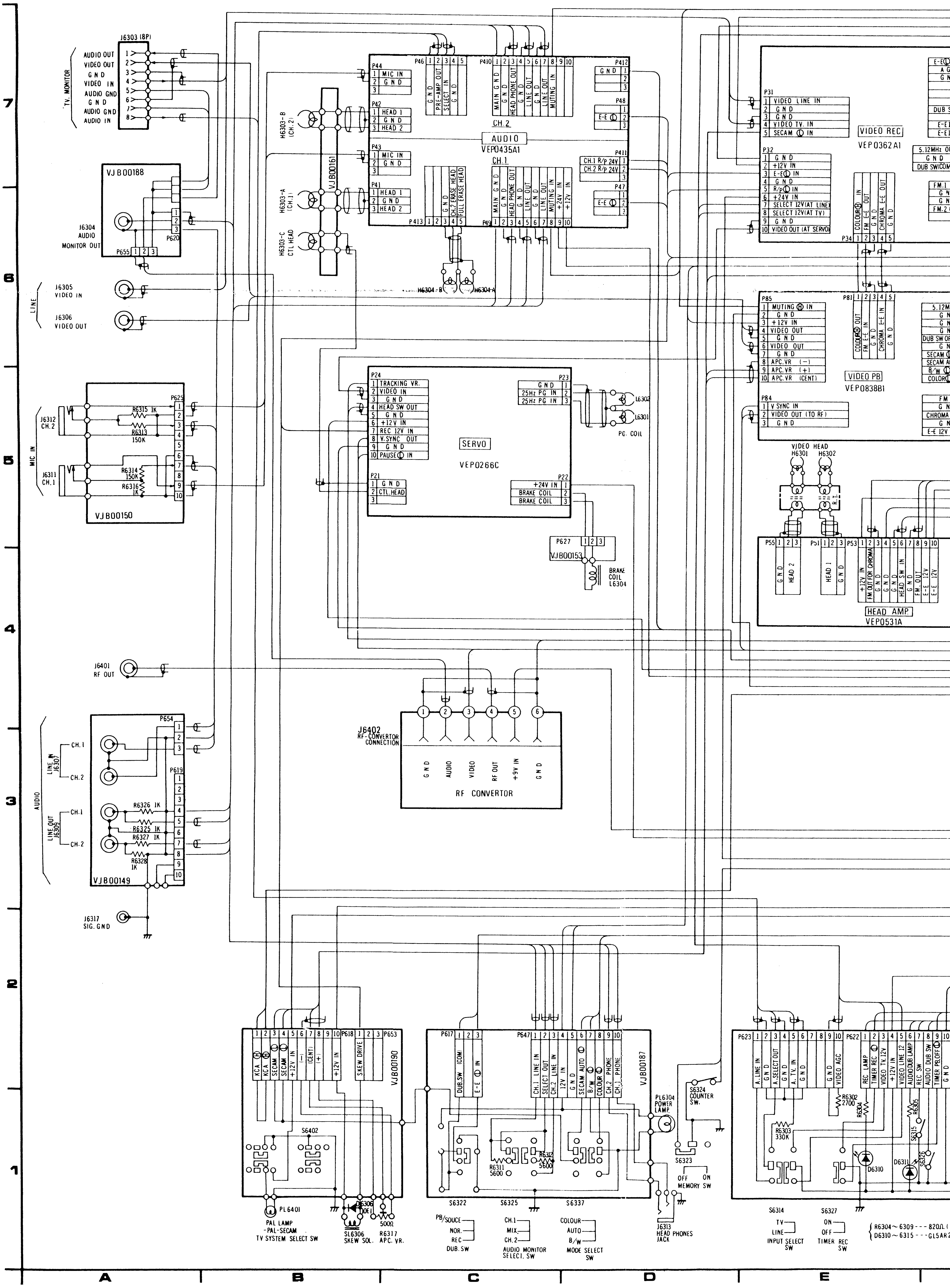

VJB 00155
FROM VJB00134
LAMP FOR PHOTO TR
EAMG3 94V-1
FROM VJB00134
VJB 00140
PHOTO TR

BRAKE COIL INTER-CONNECTION CIRCUIT BOARD (VJB00153)


BRAKE COIL
VJB00153
P627
6732V


CONTROL TO P25
CONTROL HEAD
AUDIO CH2. HEAD
AUDIO CH1. HEAD
VJB00161
RED
WHITE
AUDIO CH 2 TO P42
RED
WHITE
AUDIO CH 1 TO P41

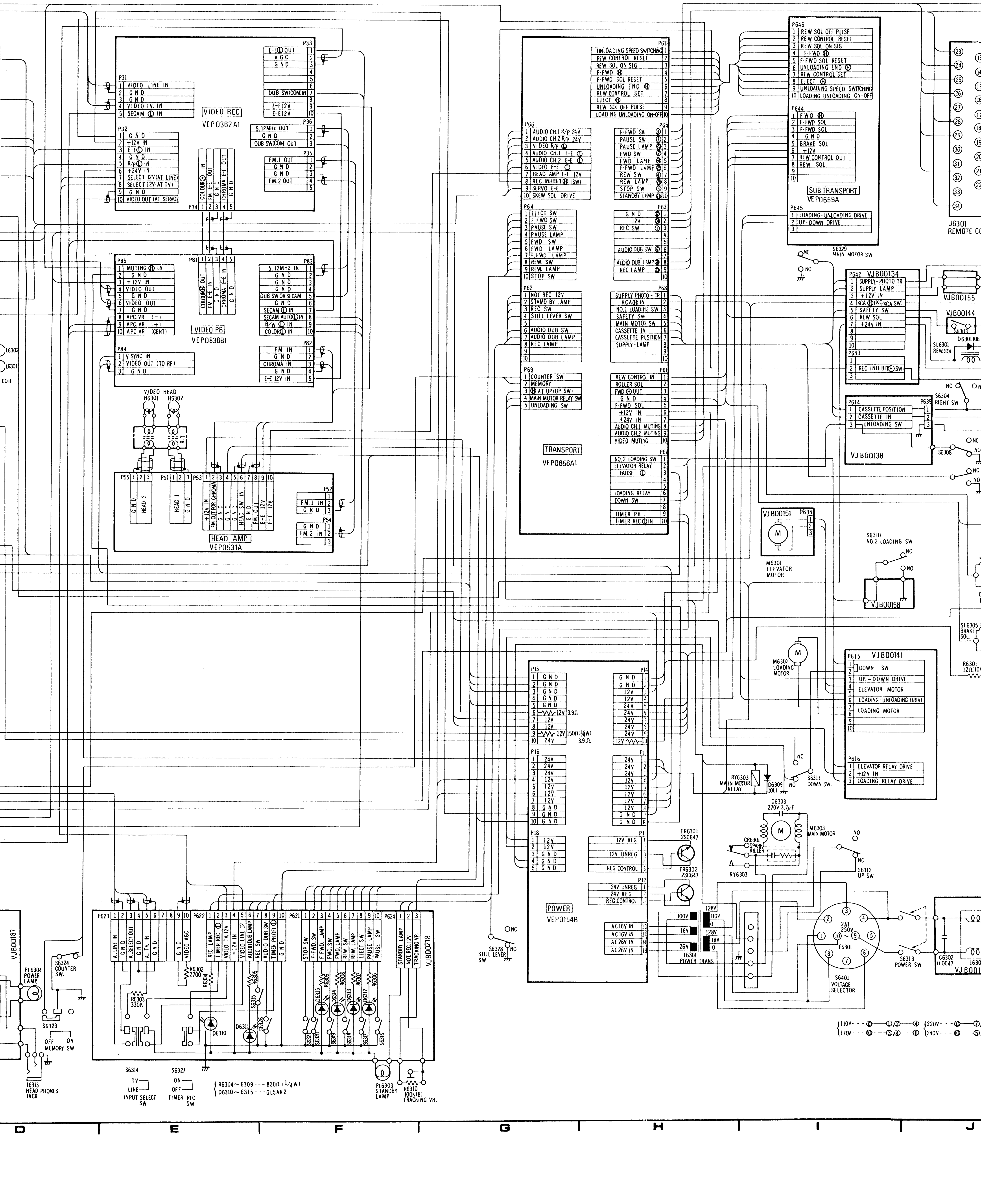
NV-9210 INTERCONN



7
6
5
4
3
2
1
A
B
C
D
E
J6303 (8P)
TV MONITOR
AUDIO OUT
VIDEO OUT
GND
VIDEO IN
AUDIO GND
GND
AUDIO GND
AUDIO IN
VJB00188
J6304 AUDIO MONITOR OUT
P655
P620
LINE
J6305 VIDEO IN
J6306 VIDEO OUT
MIC IN
J6312 CH.2
J6311 CH.1
R6315 1K
R6313 150K
R6314 150K
R6316 1K
P625
VJB00150
J6401 RF OUT
AUDIO
LINE IN J6307
LINE OUT J6309
CH.1
CH.2
R6326 1K
R6325 1K
R6327 1K
R6328 1K
P654
P619
VJB00149
J6317 SIG. GND
H6303-B (CH.2)
H6303-A (CH.1)
H6303-C CTL HEAD
VJB00161
H6304-B
H6304-A
P44 MIC IN, GND
P42 HEAD 1, GND, HEAD 2
P43 MIC IN, GND
P41 HEAD 1, GND, HEAD 2
P46 GND, PRE-AMP OUT, SELECT IN, GND
P410 MAIN GND, GND, HEAD PHONE OUT, GND, LINE OUT, GND, LINE OUT, MUTING IN
CH.2
AUDIO
VEP0435A1
CH.1
P412 GND
P48 E-E
P411 CH.1 R/P 24V, CH.2 R/P 24V
P47 E-E
P413 GND, CH.2 ERASE HEAD, FULL ERASE HEAD
P49 MAIN GND, GND, HEAD PHONE OUT, GND, LINE OUT, GND, LINE OUT, MUTING IN, +24V IN, +12V
P24 TRACKING VR., VIDEO IN, GND, HEAD SW OUT, GND, +12V IN, REC 12V IN, V.SYNC OUT, GND, PAUSE IN
P23 GND, 25Hz PG IN, 25Hz PG IN
L6302
L6301
PG COIL
SERVO
VEP0266C
P21 GND, CTL.HEAD
P22 +24V IN, BRAKE COIL, BRAKE COIL
P627
VJB00153
BRAKE COIL L6304
J6402 RF-CONVERTOR CONNECTION
GND
AUDIO
VIDEO
RF OUT
+9V IN
GND
RF CONVERTOR
P31 VIDEO LINE IN, GND, GND, VIDEO TV. IN, SECAM IN
P32 GND, +12V IN, E-E IN, GND, R/P IN, +24V IN, SELECT 12V(AT LINE), SELECT 12V(AT TV), GND, VIDEO OUT (AT SERVO)
VIDEO REC
VEP0362A1
P34 COLOUR IN, FM E-E OUT, GND, CHROMA E-E OUT
5.12MHz OUT
GND
DUB SW(COM)
FM.1
FM.2
P85 MUTING IN, GND, +12V IN, VIDEO OUT, GND, VIDEO OUT, GND, APC.VR (-), APC.VR (+), APC.VR (CENT)
P81 COLOUR OUT, FM E-E IN, GND, CHROMA E-E IN
VIDEO PB
VEP0838B1
P84 V SYNC IN, VIDEO OUT (TO RF), GND
5.12M
DUB SW OF
SECAM
B/W
COLOR
FM
CHROMA
E-E 12V
VIDEO HEAD
H6301
H6302
R.T.
P55 GND, HEAD 2
P51 HEAD 1, GND
P53 +12V IN, FM OUT FOR CHROMA, GND, GND, GND, HEAD SW IN, GND, FM OUT, E-E 12V, E-E 12V
HEAD AMP
VEP0531A
P618 KCA, KCA, SECAM, SECAM, +12V IN, (-), (CENT), (+), +12V IN
P653 SKEW DRIVE
VJB00190
S6402
PL6401 PAL LAMP
-PAL-SECAM
TV SYSTEM SELECT SW
D6306 OE1
SL6306 SKEW SOL.
500Ω
R6317 APC. VR.
P617 DUB.SW (COM), E-E IN
P647 CH.1 LINE IN, SELECT OUT, CH.2 LINE IN, 12V IN, GND, SECAM AUTO, B/W, COLOUR, CH.2 PHONE, CH.1 PHONE
VJB00187
R6311 5600
R6312 5600
S6322
S6325
S6337
PB/SOUCE
NOR.
REC
DUB. SW
CH.1
MIX
CH.2
AUDIO MONITOR SELECT. SW
COLOUR
AUTO
B/W
MODE SELECT SW
PL6304 POWER LAMP
S6324 COUNTER SW.
S6323
OFF ON
MEMORY SW
J6313 HEAD PHONES JACK
P623 A.LINE IN, GND, A.SELECT OUT, GND, A.TV. IN, GND, GND, VIDEO AGC
P622 REC LAMP, TIMER REC, VIDEO TV. 12V, VIDEO LINE 12, AUDIO DUB LAMP, REC SW, AUDIO DUB SW, TIMER PROOF, GND
R6302 2700
R6303 330K
R6304
R6305
S6315
S6326
D6310
D6311
S6314
TV
LINE
INPUT SELECT SW
S6327
ON
OFF
TIMER REC SW
R6304~6309 --- 820Ω
D6310~6315 --- GL5AR2

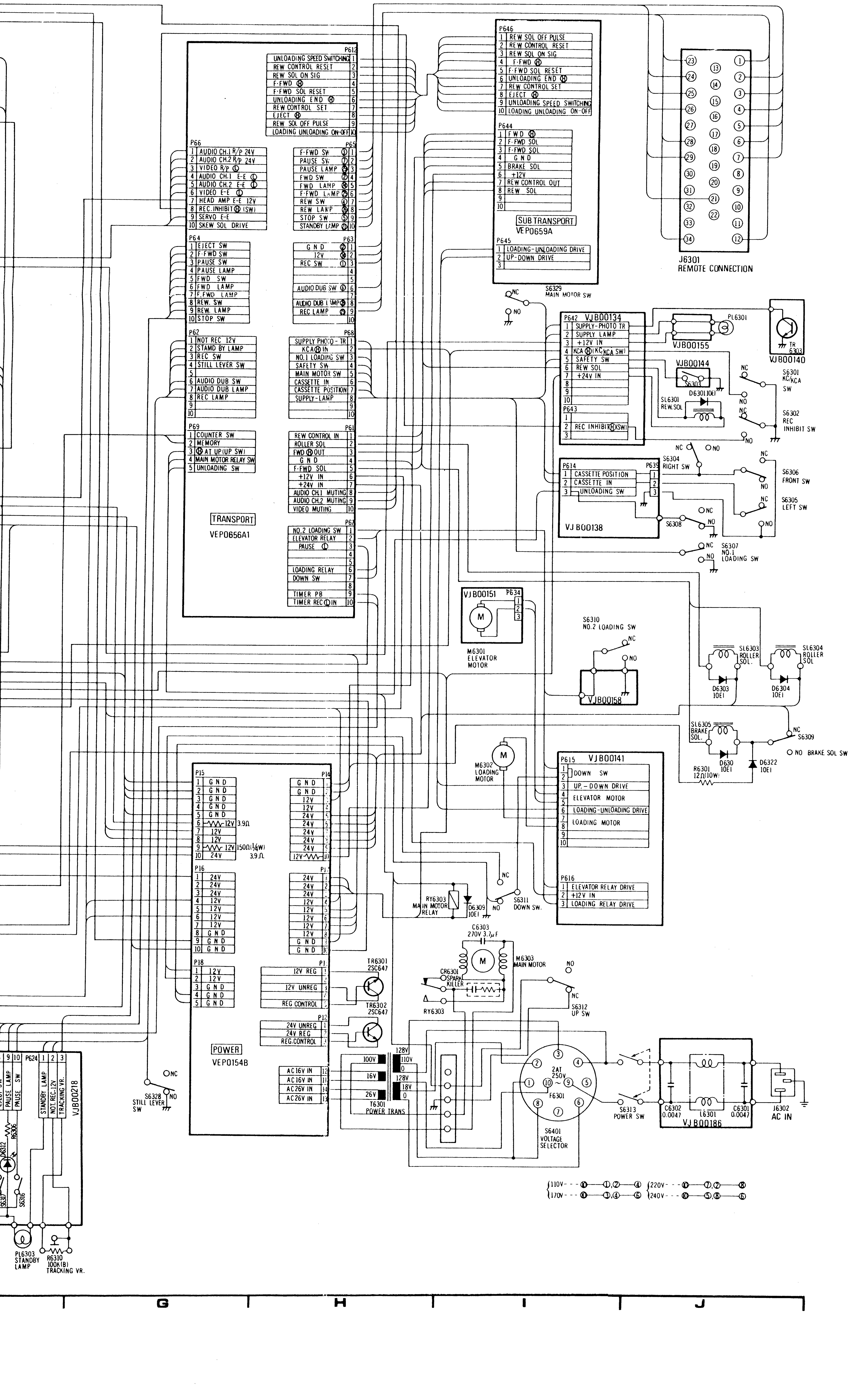
Panasonic V1115

NV-9210 INTERCONNECTION DIAGRAM


P31
1 VIDEO LINE IN
2 GND
3 GND
4 VIDEO TV. IN
5 SECAM ① IN
P32
1 GND
2 +12V IN
3 E-E① IN
4 GND
5 R/P① IN
6 +24V IN
7 SELECT 12V(AT LINE)
8 SELECT 12V(AT TV)
9 GND
10 VIDEO OUT (AT SERVO)
P33
E-E① OUT
AGC
GND
DUB SW(COM)IN
E-E12V
E-E12V
VIDEO REC
VEP0362A1
P36
5.12MHz OUT
GND
DUB SW(COM) OUT
P35
FM.1 OUT
GND
GND
FM.2 OUT
P34
COLOUR① IN
FM E-E OUT
GND
CHROMA E-E OUT
GND
P81
COLOUR① OUT
FM E-E IN
GND
CHROMA E-E IN
GND
P85
1 MUTING ① IN
2 GND
3 +12V IN
4 VIDEO OUT
5 GND
6 VIDEO OUT
7 GND
8 APC.VR (−)
9 APC.VR (+)
10 APC.VR (CENT)
P83
5.12MHz IN
GND
GND
GND
DUB SW OR SECAM
GND
SECAM ① IN
SECAM AUTO① IN
B/W ① IN
COLOR① IN
VIDEO PB
VEP0838B1
P84
1 V SYNC IN
2 VIDEO OUT (TO RF)
3 GND
P82
FM IN
GND
CHROMA IN
GND
E-E 12V IN
VIDEO HEAD
H6301
H6302
P55
GND
HEAD 2
P51
HEAD 1
GND
P53
+12V IN
FM OUT FOR CHROMA
GND
GND
GND
HEAD SW IN
GND
FM OUT
E-E 12V
E-E 12V
P52
FM.1 IN
GND
P54
GND
FM.2 IN
HEAD AMP
VEP0531A
L6302
L6301
COIL
P612
1 UNLOADING SPEED SWITCHING
2 REW CONTROL RESET
3 REW SOL ON SIG
4 F-FWD ①
5 F-FWD SOL RESET
6 UNLOADING END ①
7 REW CONTROL SET
8 EJECT ①
9 REW SOL OFF PULSE
10 LOADING UNLOADING ON-OFF
P66
1 AUDIO CH.1 R/P 24V
2 AUDIO CH.2 R/P 24V
3 VIDEO R/P ①
4 AUDIO CH.1 E-E ①
5 AUDIO CH.2 E-E ①
6 VIDEO E-E ①
7 HEAD AMP E-E 12V
8 REC.INHIBIT① (SW)
9 SERVO E-E
10 SKEW SOL DRIVE
P65
F-FWD SW
PAUSE SW
PAUSE LAMP
FWD SW
FWD LAMP
F-FWD LAMP
REW SW
REW LAMP
STOP SW
STANDBY LAMP
P64
1 EJECT SW
2 F-FWD SW
3 PAUSE SW
4 PAUSE LAMP
5 FWD SW
6 FWD LAMP
7 F.FWD LAMP
8 REW. SW
9 REW. LAMP
10 STOP SW
P63
GND
12V
REC SW
AUDIO DUB SW
AUDIO DUB LAMP
REC LAMP
P62
1 NOT REC 12V
2 STAND BY LAMP
3 REC SW
4 STILL LEVER SW
6 AUDIO DUB SW
7 AUDIO DUB LAMP
8 REC LAMP
P68
SUPPLY PHOTO-TR
KCA① IN
NO.1 LOADING SW
SAFETY SW
MAIN MOTOR SW
CASSETTE IN
CASSETTE POSITION
SUPPLY-LAMP
P69
1 COUNTER SW
2 MEMORY
3 ① AT UP(UP SW)
4 MAIN MOTOR RELAY SW
5 UNLOADING SW
P61
REW CONTROL IN
ROLLER SOL
FWD ① OUT
GND
F-FWD SOL
+12V IN
+24V IN
AUDIO CH.1 MUTING
AUDIO CH.2 MUTING
VIDEO MUTING
P67
NO.2 LOADING SW
ELEVATOR RELAY
PAUSE ①
LOADING RELAY
DOWN SW
TIMER PB
TIMER REC① IN
TRANSPORT
VEP0656A1
P646
1 REW SOL OFF PULSE
2 REW CONTROL RESET
3 REW SOL ON SIG
4 F-FWD ①
5 F-FWD SOL RESET
6 UNLOADING END ①
7 REW CONTROL SET
8 EJECT ①
9 UNLOADING SPEED SWITCHING
10 LOADING UNLOADING ON-OFF
P644
1 FWD ①
2 F-FWD SOL
3 F-FWD SOL
4 GND
5 BRAKE SOL
6 +12V
7 REW CONTROL OUT
8 REW SOL
SUB TRANSPORT
VEP0659A
P645
1 LOADING-UNLOADING DRIVE
2 UP-DOWN DRIVE
J6301
REMOTE C
S6329
MAIN MOTOR SW
NC
NO
P642 VJB00134
1 SUPPLY-PHOTO TR
2 SUPPLY LAMP
3 +12V IN
4 KCA ① (KC KCA SW)
5 SAFETY SW
6 REW SOL
7 +24V IN
P643
2 REC INHIBIT①(SW)
VJB00155
VJB00144
S6302
SL6301
REW.SOL
D6301 10E1
S6304
RIGHT SW
P614
1 CASSETTE POSITION
2 CASSETTE IN
3 UNLOADING SW
P635
VJ B00138
S6308
VJB00151
P634
M6301
ELEVATOR MOTOR
S6310
NO.2 LOADING SW
VJB00158
SL6305
BRAKE SOL.
M6302
LOADING MOTOR
P615 VJB00141
2 DOWN SW
3 UP.−DOWN DRIVE
4 ELEVATOR MOTOR
6 LOADING-UNLOADING DRIVE
7 LOADING MOTOR
R6301
12Ω(10W)
P616
1 ELEVATOR RELAY DRIVE
2 +12V IN
3 LOADING RELAY DRIVE
RY6303
MAIN MOTOR RELAY
D6309
10E1
S6311
DOWN SW.
C6303
270V 3.7μF
CR6301
SPARK KILLER
M6303
MAIN MOTOR
RY6303
S6312
UP SW
P15
1 GND
2 GND
3 GND
4 GND
5 GND
6 12V 3.9Ω
7 12V
8 12V
9 12V 150Ω(1/4W)
10 24V
3.9Ω
P14
GND
GND
12V
12V
12V
24V
24V
24V
24V
24V
12V
P16
1 24V
2 24V
3 24V
4 12V
5 12V
6 12V
7 12V
8 GND
9 GND
10 GND
P17
24V
24V
24V
12V
12V
12V
12V
12V
GND
GND
P18
1 12V
2 12V
3 GND
4 GND
5 GND
P11
12V REG
12V UNREG
REG CONTROL
TR6301
2SC647
TR6302
2SC647
P12
24V UNREG
24V REG
REG.CONTROL
POWER
VEP0154B
AC16V IN
AC16V IN
AC26V IN
AC26V IN
100V
16V
26V
128V
110V
128V
18V
T6301
POWER TRANS
S6401
VOLTAGE SELECTOR
2AT 250V
F6301
S6313
POWER SW
C6302
0.0047
VJB001
110V---⑩---①,②---④
170V---⑩---③,④---⑥
220V---⑩---⑦,
240V---⑩---⑤,
S6328
STILL LEVER SW
NC
NO
P623
A. LINE IN
GND
A.SELECT OUT
GND
A. TV. IN
GND
GND
VIDEO AGC
P622
REC. LAMP
TIMER REC ①
VIDEO TV.12V
+12V IN
VIDEO LINE 12
AUDIO DUB LAMP
REC SW
AUDIO DUB SW
TIMER PB OFF①
P621
STOP SW
F.FWD. SW
F.FWD. LAMP
FWD. SW
FWD. LAMP
REW. SW
REW. LAMP
EJECT SW
PAUSE LAMP
PAUSE SW
P624
STANDBY LAMP
NOT REC.12V
TRACKING VR.
VJB00218
R6302
2700
R6303
330K
R6304
R6305
D6310
D6311
S6315
S6326
D6315
D6314
D6313
D6312
R6309
R6308
R6307
R6306
S6320
S6319
S6318
S6317
S6316
VJB00187
PL6304
POWER LAMP
S6324
COUNTER SW.
S6323
OFF
ON
MEMORY SW
J6313
HEAD PHONES JACK
S6314
TV
LINE
INPUT SELECT SW
S6327
ON
OFF
TIMER REC SW
R6304～6309---820Ω(1/4W)
D6310～6315---GL5AR2
PL6303
STANDBY LAMP
R6310
100K(B)
TRACKING VR.
D
E
F
G
H
I
J

(81) NV9210

N DIAGRAM


P612
UNLOADING SPEED SWITCHING
REW CONTROL RESET
REW SOL ON SIG
F-FWD
F-FWD SOL RESET
UNLOADING END
REW CONTROL SET
EJECT
REW SOL OFF PULSE
LOADING UNLOADING ON-OFF
P66
AUDIO CH.1 R/P 24V
AUDIO CH.2 R/P 24V
VIDEO R/P
AUDIO CH.1 E-E
AUDIO CH.2 E-E
VIDEO E-E
HEAD AMP E-E 12V
REC. INHIBIT (SW)
SERVO E-E
SKEW SOL DRIVE
P65
F-FWD SW
PAUSE SW
PAUSE LAMP
FWD SW
FWD LAMP
F-FWD LAMP
REW SW
REW LAMP
STOP SW
STANDBY LAMP
P64
EJECT SW
F-FWD SW
PAUSE SW
PAUSE LAMP
FWD SW
FWD LAMP
F-FWD LAMP
REW. SW
REW. LAMP
STOP SW
P63
GND
12V
REC SW
AUDIO DUB SW
AUDIO DUB LAMP
REC LAMP
P62
NOT REC 12V
STAND BY LAMP
REC SW
STILL LEVER SW
AUDIO DUB SW
AUDIO DUB LAMP
REC LAMP
P68
SUPPLY PHOTO-TR
KCA IN
NO.1 LOADING SW
SAFETY SW
MAIN MOTOR SW
CASSETTE IN
CASSETTE POSITION
SUPPLY-LAMP
P69
COUNTER SW
MEMORY
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MAIN MOTOR RELAY SW
UNLOADING SW
P61
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ROLLER SOL
FWD OUT
GND
F-FWD SOL
+12V IN
+24V IN
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AUDIO CH.2 MUTING
VIDEO MUTING
TRANSPORT
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P67
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ELEVATOR RELAY
PAUSE
LOADING RELAY
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TIMER PB
TIMER REC IN
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REW CONTROL RESET
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REW CONTROL SET
EJECT
UNLOADING SPEED SWITCHING
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F-FWD SOL
GND
BRAKE SOL
+12V
REW CONTROL OUT
REW SOL
SUB TRANSPORT
VEP0659A
P645
LOADING-UNLOADING DRIVE
UP-DOWN DRIVE
J6301
REMOTE CONNECTION
S6329
MAIN MOTOR SW
NC
NO
P642 VJB00134
SUPPLY-PHOTO TR
SUPPLY LAMP
+12V IN
KCA (KC/KCA SW)
SAFETY SW
REW SOL
+24V IN
P643
REC INHIBIT (SW)
VJB00155
PL6301
TR 6303
VJB00140
VJB00144
S6303
D6301 10E1
SL6301
REW. SOL
S6301
KC/KCA SW
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REC INHIBIT SW
P614
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UNLOADING SW
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VJB00138
S6304
RIGHT SW
S6306
FRONT SW
S6305
LEFT SW
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S6307
NO.1 LOADING SW
VJB00151
P634
M6301
ELEVATOR MOTOR
S6310
NO.2 LOADING SW
VJB00158
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ROLLER SOL.
SL6304
ROLLER SOL
D6303 10E1
D6304 10E1
SL6305
BRAKE SOL.
S6309
NO BRAKE SOL SW
R6301
12Ω(10W)
D630 10E1
D6322 10E1
M6302
LOADING MOTOR
P615 VJB00141
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UP-DOWN DRIVE
ELEVATOR MOTOR
LOADING-UNLOADING DRIVE
LOADING MOTOR
P616
ELEVATOR RELAY DRIVE
+12V IN
LOADING RELAY DRIVE
RY6303
MAIN MOTOR RELAY
D6309 10E1
S6311
DOWN SW.
C6303
270V 3.7μF
M6303
MAIN MOTOR
CR6301
SPARK KILLER
RY6303
S6312
UP SW
TR6301
2SC647
TR6302
2SC647
P15
GND
12V
24V
3.9Ω
150Ω(1/4W)
P14
P16
P17
P18
P13
12V REG
12V UNREG
REG CONTROL
P12
24V UNREG
24V REG
REG.CONTROL
POWER
VEP0154B
AC16V IN
AC26V IN
P11
100V
16V
26V
128V
110V
0
18V
T6301
POWER TRANS
2AT 250V
F6301
S6401
VOLTAGE SELECTOR
S6313
POWER SW
C6302 0.0047
L6301
C6301 0.0047
VJB00186
J6302
AC IN
110V---①—①,②—④
170V---①—③,④—⑥
220V---①—⑦,②—⑧
240V---①—⑤,⑧—⑥
P624
STANDBY LAMP
NOT REC 12V
TRACKING VR.
PAUSE LAMP
PAUSE SW
VJB00218
D6312
R6306
S6317
S6316
S6328
STILL LEVER SW
PL6303
STANDBY LAMP
R6310
100K(B)
TRACKING VR.
G
H
I
J

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ORDER NO. VRD-7804-295

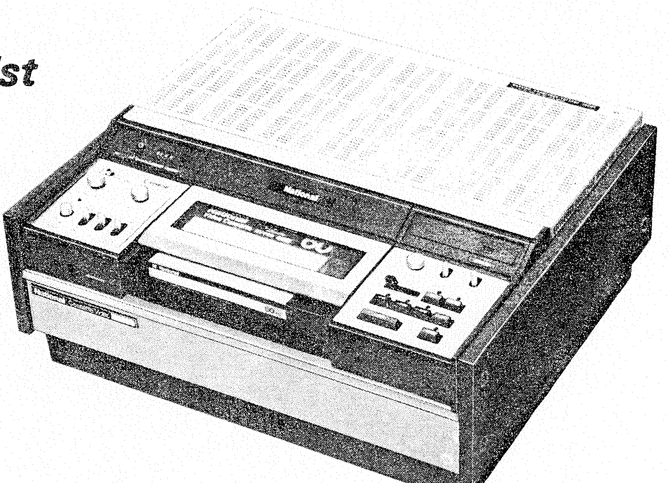
Service Manual

Video Cassette Recorder

NV-9210 -E -A -B

Vol. 4

Exploded View
Replacement Parts List



SPECIFICATIONS

Power Source: 110, 127, 220, 240 V AC, 50 Hz
Power Consumption: Approx. 110 watts
Television System: CCIR: 625 lines, 50 fields
PAL/SECAM colour signal
Video Recording System: 2 rotary heads, helical scanning system
Luminance: frequency modulation recording
Colour signal: converted subcarrier, direct recording
Audio Track: 2 tracks
Tape Format: Tape width 3/4 inch (19 mm), high density tape
Tape Speed: 95.3 mm/s
Record/Playback Time: 60 min. with NV-P26
FF/REW Time: Less than 3 min. with NV-P26
Heads: Video: 2 rotary heads
Audio/Control: 1 stationary head
Erase: 1 full track erase head
1 audio track erase head for audio dubbing
Input Level: Video: TV Monitor connector (8 P)
1.0 Vp-p, 75 Ω unbalanced
VIDEO IN connector (UHF)
1.0 Vp-p, 75 Ω unbalanced
Audio: TV Monitor connector (8 P)
0 dB, 100 kΩ unbalanced
MIC jack (PHONE) × 2
−72 dB, 600 Ω unbalanced
LINE jack × 2
−20 dB, 100 k Ω unbalanced
Output Level: Video: TV Monitor connector (8 P)
1.0 Vp-p, 75 Ω unbalanced
VIDEO OUT connector (UHF)
1.0 Vp-p, 75 Ω unbalanced
Audio: TV Monitor connector (8 P)
0 dB, 5 k Ω unbalanced
LINE OUT jack × 2
−6 dB, 600 Ω unbalanced
AUDIO MONITOR OUT jack
0 dB, 5 k Ω unbalanced
HEADPHONE jack
−32 dB, 8 Ω unbalanced
RF Modulated: 73 dBμ (open voltage), 75 Ω unbalanced
Video Horizontal Resolution: Colour: better than 250 lines
(on monoscope test pattern) B/W: better than 350 lines
Audio Frequency Response: 50 — 15,000 Hz
Signal-to-Noise Ratio: Video: better than 46 dB
(Rohde & Schwarz noise meter)
Audio: better than 45 dB
Audio Cross Talk: Better than 40 dB
Operating Temperature: 5°C — 40°C
Operating Humidity: 35 % — 80 %
Weight: 30 kg
Dimensions: 540(W) × 472(D) × 238(H) mm
Standard Accessories: 1 pc. AC power cord
1 pc. VTR-Monitor connection cable, NV-C15
1 pc. Dust cover, VYC0020
Optional Accessories: 3/4″ video cassette tape:
NV-P22 Approx. 129 m, 20 min.
NV-P23 Approx. 186 m, 30 min.
NV-P26 Approx. 358 m, 60 min.
Head cleaning tape, NV-P20
Remote control unit, NV-A152-E
RF Modulator:
Plug-in/Internally Modulated
European;
RF Converter NV-U47A (UHF)
RF Converter NV-U483S (VHF)
RF Converter NV-U484S (VHF)
Australian;
RF Converter NV-480A (VHF)
RF Converter NV-481A (VHF)

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

National

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

(84)/NV 9210

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MECHANICAL REPLACEMENT PARTS LIST 8-1
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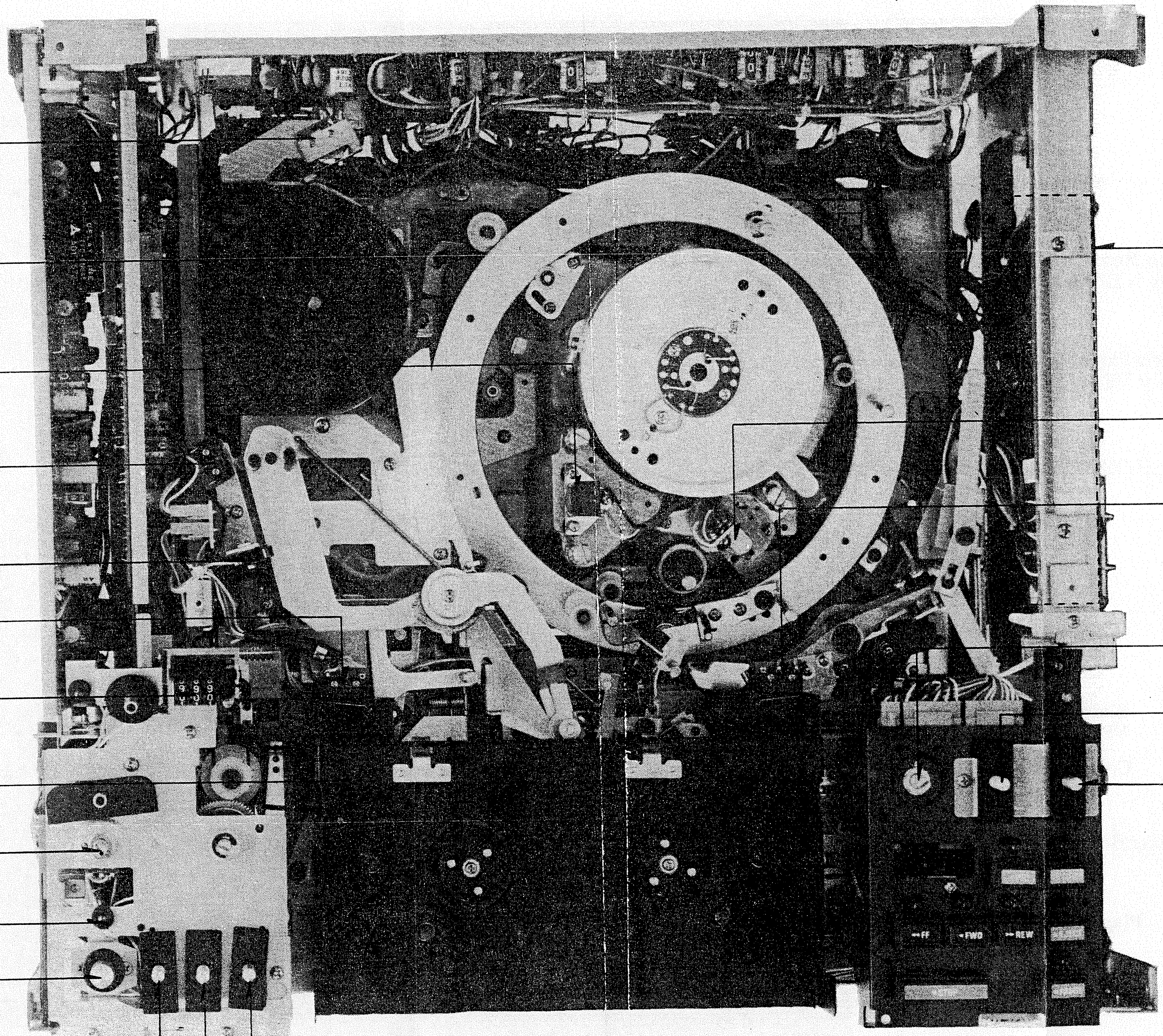
INNER PART LOCATION

Top View (1)



Micro Switch (Loading Completion No. 1)
VSM0027 (S6307)

AC Motor VRS0002 (M6303)

Full Erase Head VSB0007 (H6304)

Micro Switch (AC Motor)
VSM0027 (S6329)

Micro Switch (Unloading Completion)
VSM0027 (S6308)

Micro Switch (Cassette Position Left)
VSM16 (S6305)

Tape Counter VDC0013

Micro Switch (Cassette Position Front)
VSM0026 (S6306)

Variable Resistor (APC)
EVHCHAK20B52 (R6317)

Pilot Lamp (Power)
XAMR14P110W (PL6304)

Power Switch ESB7097 (S6313)

Lever Switch (Dub) VST0010 (S6322)

Lever Switch (Audio Monitor)
VST0010 (S6325)

Lever Switch (Mode Select)
VST0010 (S6337)

Control Circuit Board Ass'y
VEP0266C

Audio/Control Head VBR0016 (H6303)

Micro Switch (Cassette Position Right)
VSM16 (S6304)

Variable Resistor (Tracking)
EVHCHAK20B15 (R6310)

Lever Switch (Input Select)
VST0008 (S6314)

Lever Switch (Timer REC) VST0008 (S6327)

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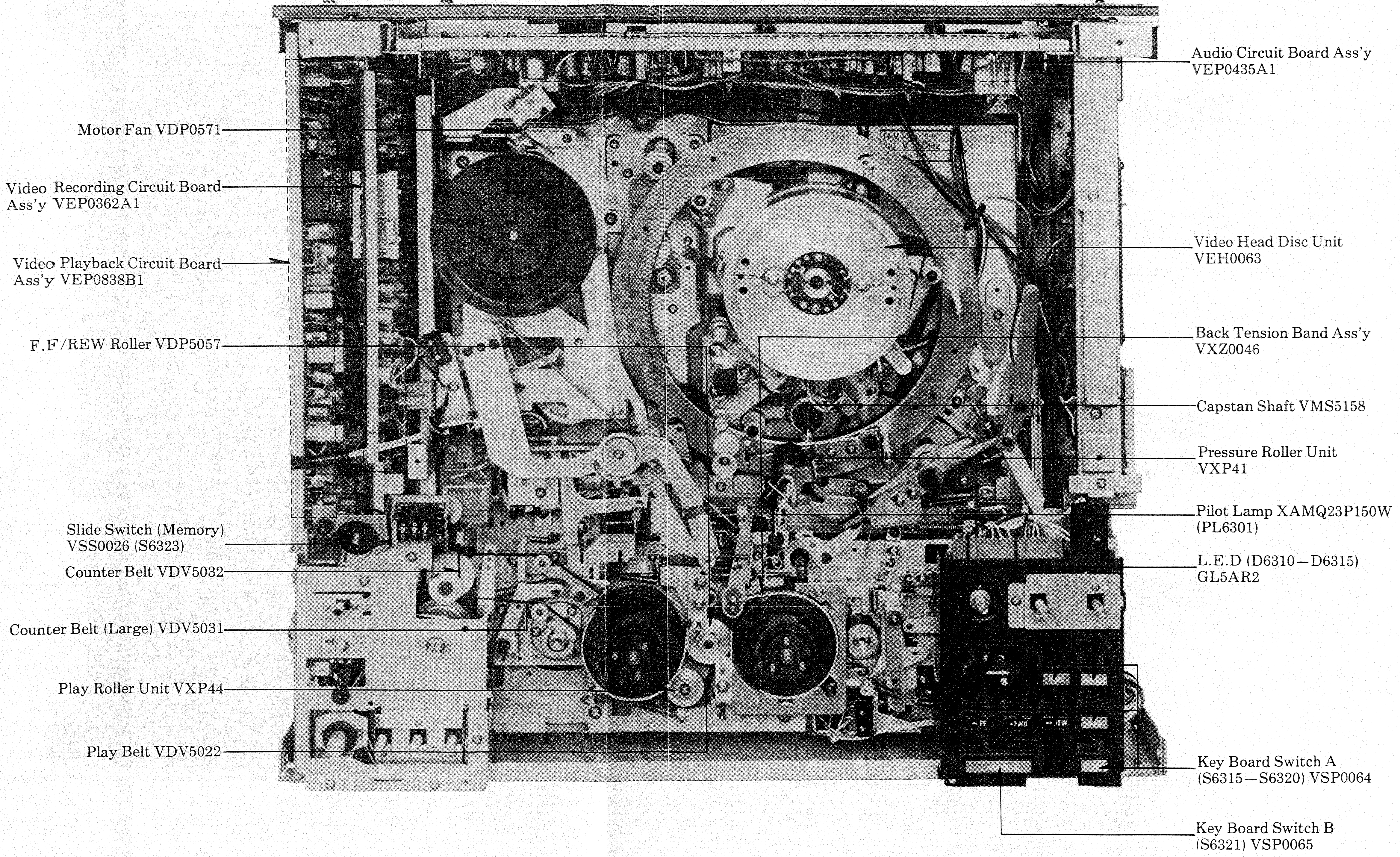
Top View (2)


Motor Fan VDP0571
Video Recording Circuit Board Ass'y VEP0362A1
Video Playback Circuit Board Ass'y VEP0838B1
F.F/REW Roller VDP5057
Slide Switch (Memory) VSS0026 (S6323)
Counter Belt VDV5032
Counter Belt (Large) VDV5031
Play Roller Unit VXP44
Play Belt VDV5022
Audio Circuit Board Ass'y VEP0435A1
Video Head Disc Unit VEH0063
Back Tension Band Ass'y VXZ0046
Capstan Shaft VMS5158
Pressure Roller Unit VXP41
Pilot Lamp XAMQ23P150W (PL6301)
L.E.D (D6310—D6315) GL5AR2
Key Board Switch A (S6315—S6320) VSP0064
Key Board Switch B (S6321) VSP0065

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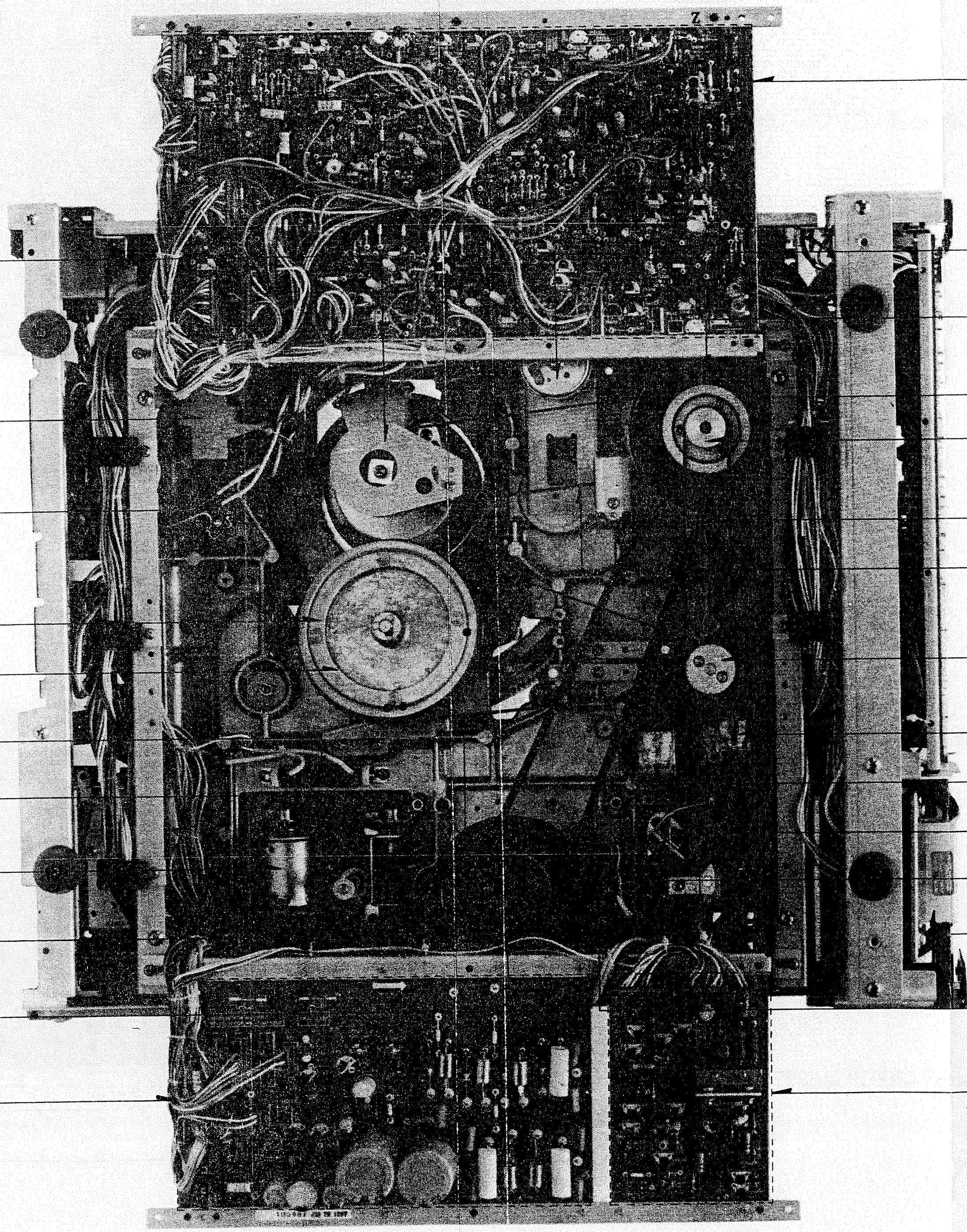
Bottom View


Transport Circuit Board Ass'y VEP0656A1
Cylinder Pulley VDP0510B, VDP0510C, VDP0510D, VDP0510E, VDP0510F, VDP0510G, VDP0510H, VDP0510J, VDP0510K
Loading Motor MY15B2A (M6302)
Motor Fan VDP0572
Motor Pulley Upper VDP5036
Capacitor ECWF27375UAE (C6303)
Motor Pulley Lower VDP5051
Relay (AC Motor) VSY217 (RY6303)
Servo Belt VDV5020
Control Belt VDV5025
Flywheel VDF0028
Intermediate Pulley Lower VDP0462—VDP0466
Eccentric Idler Unit VXP0184
Enamelled Resistor VRE10H120S (R6301)
Relay (Elevator Motor) VSY410 (RY6301)
Relay (Loading Motor) VSY410 (RY6302)
Cassette Drive Belt VDV5016
Cassette Position Switch (UP) VSM0027 (S6312)
Cassette Elevator Motor MY15B2A (M6301)
Cassette Position Switch (DOWN) VSM0024 (S6311)
Capstan Belt VDV0081
Power Transformer ETP105Q6E (T6301)
Fan VDP0572
Rewind Belt VDV5014
Sub-transport Circuit Board Ass'y VEP0659A
Power Supply Circuit Board Ass'y VEP0154B

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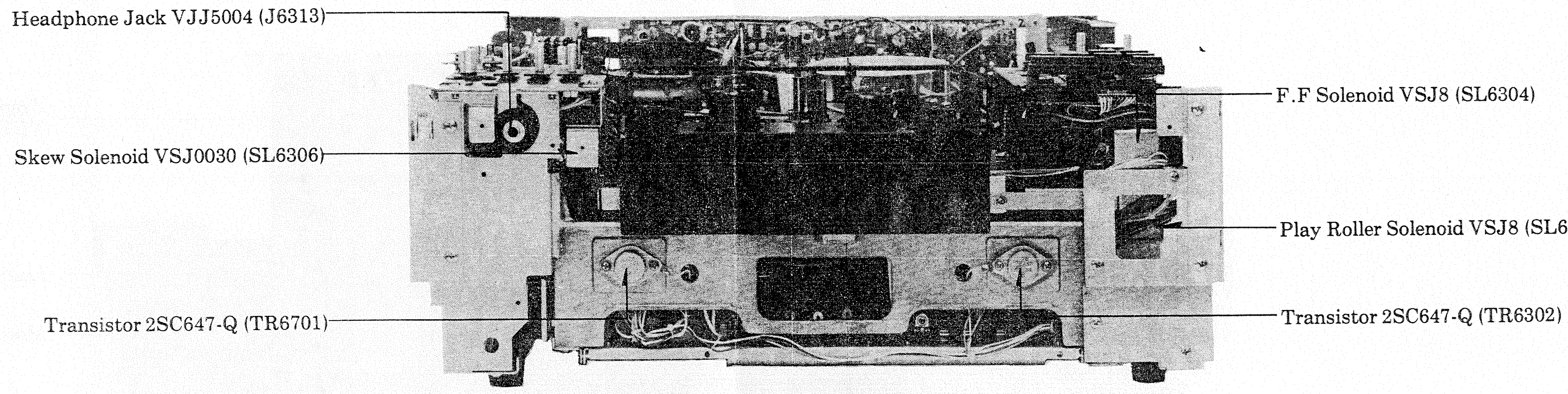
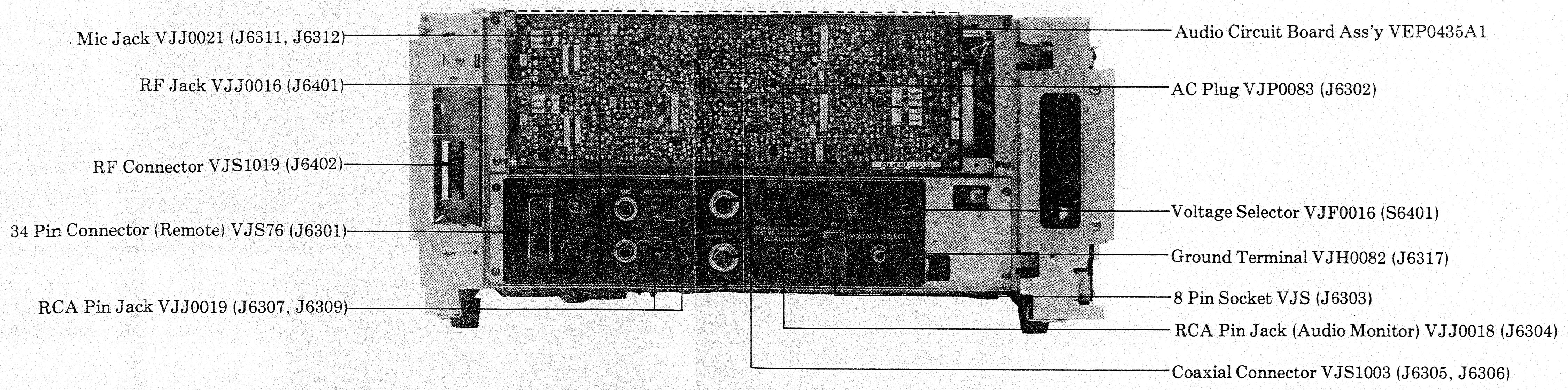
Front View


Headphone Jack VJJ5004 (J6313)
Skew Solenoid VSJ0030 (SL6306)
Transistor 2SC647-Q (TR6701)
F.F Solenoid VSJ8 (SL6304)
Play Roller Solenoid VSJ8 (SL6303)
Transistor 2SC647-Q (TR6302)

Rear View


Mic Jack VJJ0021 (J6311, J6312)
RF Jack VJJ0016 (J6401)
RF Connector VJS1019 (J6402)
34 Pin Connector (Remote) VJS76 (J6301)
RCA Pin Jack VJJ0019 (J6307, J6309)
Audio Circuit Board Ass'y VEP0435A1
AC Plug VJP0083 (J6302)
Voltage Selector VJF0016 (S6401)
Ground Terminal VJH0082 (J6317)
8 Pin Socket VJS (J6303)
RCA Pin Jack (Audio Monitor) VJJ0018 (J6304)
Coaxial Connector VJS1003 (J6305, J6306)

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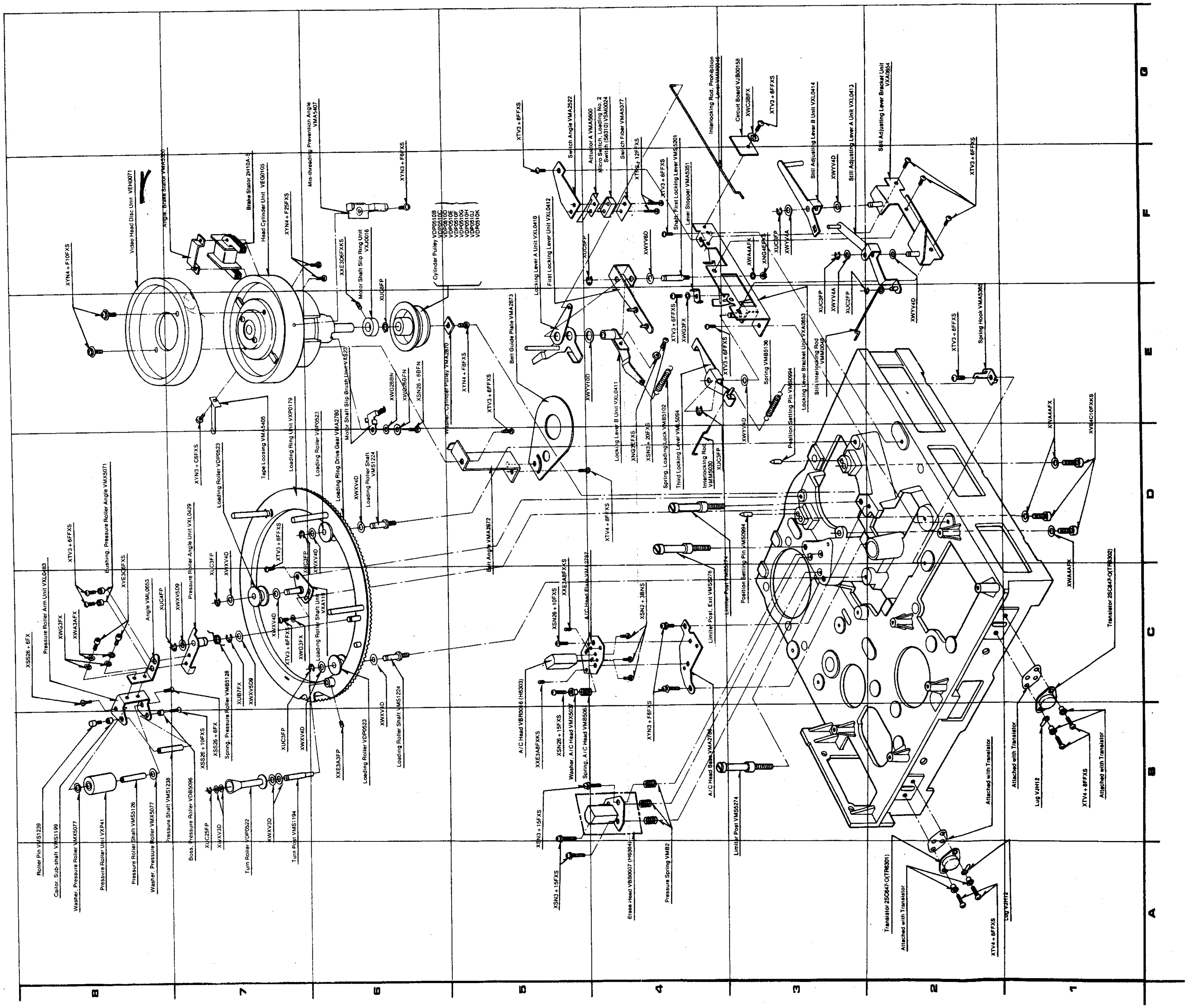
EXPLODED VIEW ❶ *Transport Section*


Video Head Disc Unit VEH0071
Angle, Brake Stator VMA5330
Brake Stator 2H10A-S
Head Cylinder Unit VEG0105
XYN4 + F25FXS
Mis-threading Prevention Angle VMA5407
XYN3 + F8FXS
Motor Shaft Slip Ring Unit VXJ0016
XUC6FP
Cylinder Pulley
XYN4 + F10FXS
XSN26 + 6BFN
Washer, Cylinder Pulley VMA2870
XYN4 + F8FXS
XTV3 + 6FFXS
Belt Guide Plate VMA2873
Belt Angle VMA2872
XTV4 + 8FFXS
Locking Lever A Unit VXL0410
First Locking Lever Unit VXL0412
XTV3 + 8FFXS
Switch Angle VMA2522
Actuator A VMA5600
Micro Switch, Loading No. 2
Switch Fiber VMA5377
XTV3 + 12FFXS
Interlocking Rod, Prohibition
Circuit Board VJB00158
XTV3 + 6FFXS
Still Adjusting Lever B Unit VXL0414
Still Adjusting Lever A Unit VXL0413
Still Adjusting Lever Bracket Unit VXA0654
XWYV4D
Spring Hook VMA5365
Locking Lever B Unit VXL0411
Third Locking Lever
Spring, Loading Lock
Interlocking Rod
Position Setting Pin VMS5094
Limiter Post, Ext
Limiter Post VMS5274
A/C Head Base
XSN2 + 3BNS
XSN26 + 10FXS
A/C Head
Washer, A/C Head
Spring, A/C Head
XSN26 + 15FXS
XYN3 + F8FXS
Erase Head
Pressure Spring VMB2
XSN3 + 15FXS
Transistor 2SC847-O(TR8302)
Attached with Transistor
Lug VJH12
XTV4 + 8FFXS
Transistor 2SC847-O(TR8301)
XWA4AFX
Loading Ring Unit VXP0179
Loading Roller VDP0523
Loading Ring Drive Gear VMA2780
Loading Roller Shaft VMS1224
Loading Roller Shaft Unit
Tape Loosening
Pressure Roller Arm Unit VXL0483
Pressure Roller Angle Unit VXL0429
Bushing, Pressure Roller Angle VMX5071
Angle VML0653
XUC4FP
XSS26 + 6FX
XSS26 + 10FXS
Spring, Pressure Roller VMB5128
XUB7FX
Roller Pin VMS1239
Collar, Sub-shaft VMS1199
Washer, Pressure Roller VMX5077
Pressure Roller Unit VXP41
Pressure Roller Shaft VMS5126
Pressure Shaft VMS1238
Boss, Pressure Roller
Turn Roller VDP0522
Turn Post VMS1194
XUC3FP
XWXV4D
G
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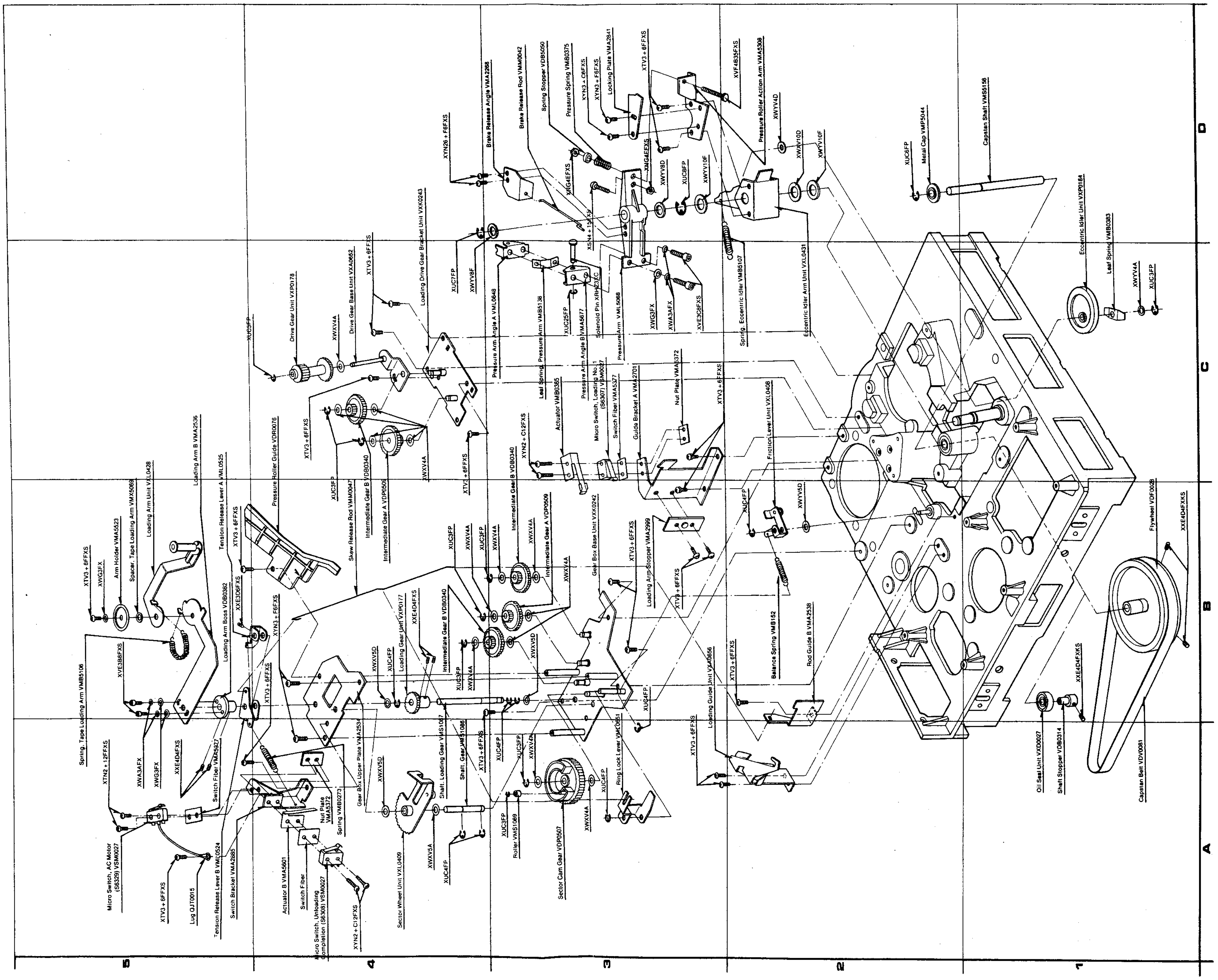
❷ *Loading Mechanism Section*



XYN26+F6FXS
Brake Release Angle VMA2268
Brake Release Rod VMM0042
Spring Stopper VDB5050
Pressure Spring VMB5375
XYN3+C6FXS
XYN3+F8FXS
Locking Plate VMA2841
XTV3+6FFXS
XVF4B35FXS
Pressure Roller Action Arm VMA5308
XWYV4D
XWYV10D
XWYV10F
XUC6FP
Metal Cap VMP5044
Capstan Shaft VMS0156
XMG4EFXS
XWYV8D
XUC8FP
XWYV10E
Loading Drive Gear Bracket Unit VXK0243
XUC7FP
XWYV8F
XTV3+6FFXS
Drive Gear Base Unit VXA0652
XWXV4A
Drive Gear Unit VXP0178
XUC5FP
Pressure Arm Angle A VML0648
Leaf Spring, Pressure Arm VMB5136
XUC25FP
Pressure Arm Angle B VMA5077
Solenoid Pin
Pressure Arm VML5068
XWG3FX
XWA3AFX
XVE3C9FXS
Spring, Eccentric Idler VMB5107
Eccentric Idler Arm Unit VXL0431
Eccentric Idler Unit VXP0184
Leaf Spring VMB0383
XWYV4A
XUC3FP
Actuator VMB1085
Micro Switch, Loading No.1 (S6307) VSM0027
Switch Fiber VMA5377
Guide Bracket A VMA2701
Nut Plate VMA5372
XTV3+6FFXS
Friction Lever Unit VXL0406
XYN2+C12FXS
Intermediate Gear B VDB0340
Pressure Roller Guide VDR0076
XTV3+6FFXS
XUC3FP
Skew Release Rod VMM0047
Intermediate Gear B VDB0340
Intermediate Gear A VDP0509
XWXV4A
XTV2+6FFXS
XUC3FP
XWXV4A
XUC3FP
XWXV4A
Intermediate Gear A VDP0509
XWXV4A
Gear Box Base Unit VXK0242
XTV3+6FFXS
Loading Arm Stopper VMA2999
XTV3+6FFXS
XUC4FP
XWYV5D
Flywheel VDF0028
XXE4D4FXKS
Balance Spring VMB162
Rod Guide B VMA2538
XTV3+6FFXS
Loading Guide Unit VXA0656
XUC4FP
XTV3+6FFXS
XXE4D4FXKS
Oil Seal Unit VXD0027
Shaft Stopper VDB0314
Capstan Belt VDV0081
Loading Arm B VMA2536
Tension Release Lever A VML0525
Loading Arm Unit VXL0428
Spacer, Tape Loading Arm VMA5068
Arm Holder VMA5523
XWG3FX
XTV3+6FFXS
XTV3+6FFXS
XXE3D6FXS
Loading Arm Boss VDB0382
XYN3+F6FXS
XTV3+6FFXS
XXE4D4FXS
Loading Gear Unit VXP0177
XUC4FP
XWXV5D
Intermediate Gear B VDB0340
XUC3FP
XWXV4A
Shaft, Gear VMS1088
XTV3+6FFXS
XUC4FP
XUC3FP
XWXV4A
Shaft, Loading Gear VMS1087
Ring Lock Lever VML0651
XUC4FP
XWXV4A
Sector Cam Gear VDP0507
Roller VMS1089
XUC3FP
XWXV5A
XUC4FP
Sector Wheel Unit VXL0409
XWXV5D
Gear Box Upper Plate VMA2534
Spring VMB0272
Nut Plate VMA5372
Micro Switch, Unloading Completion (S6308) VSM0027
XYN2+C12FXS
Switch Fiber
Actuator B VMA5601
Switch Bracket VMA2885
Tension Release Lever B VML0524
Lug QJT0015
XTV3+6FFXS
Micro Switch, AC Motor (S6329) VSM0027
Switch Fiber VMA5827
XXE4D4FXS
XWG3FX
XWA3AFX
XTN2+12FFXS
Spring, Tape Loading Arm VMB5106
XVE3B8FXS
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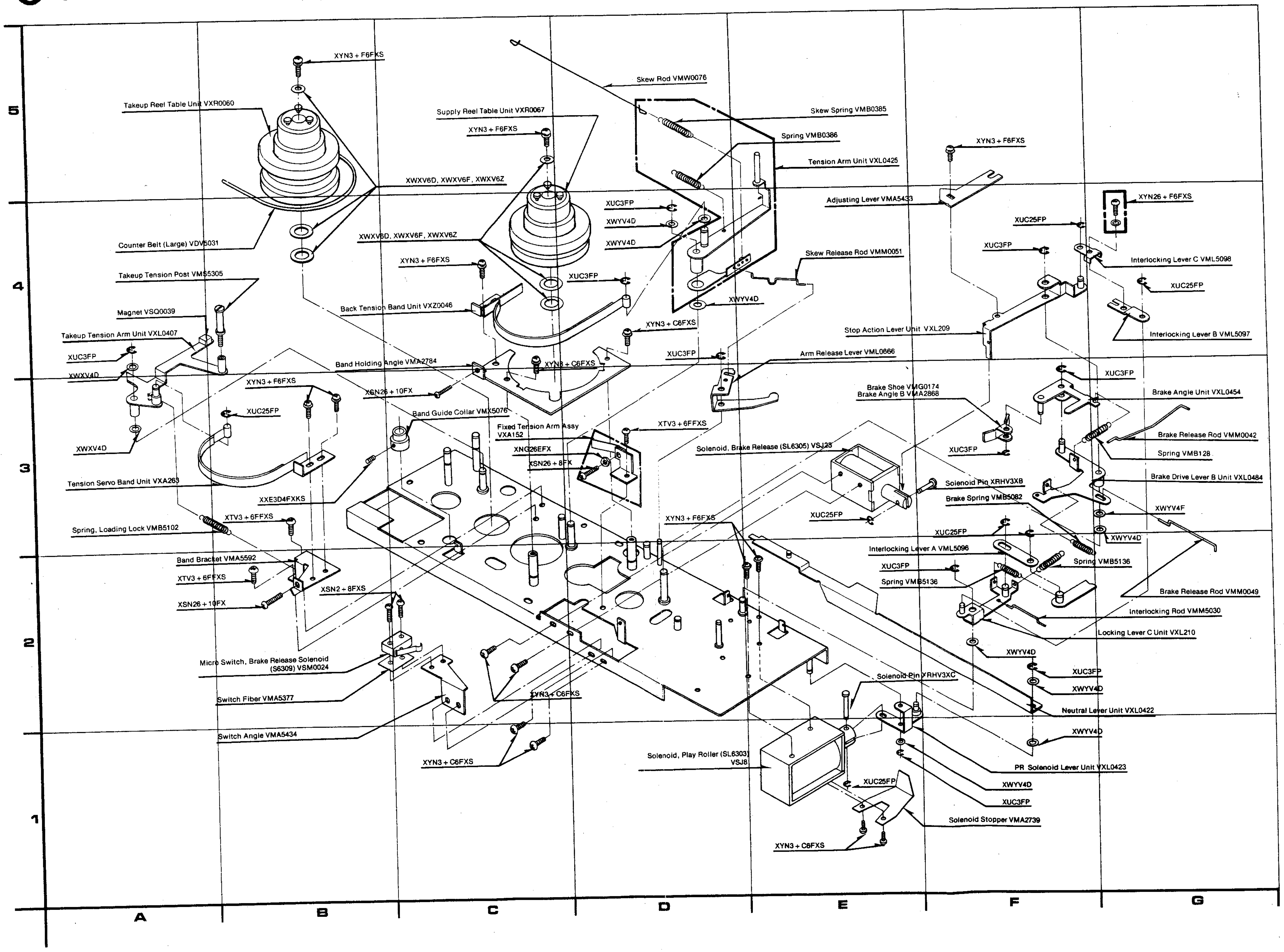
❸ *Sub-chassis Section (1)*



XYN3 + F6FXS
Skew Rod VMW0076
Takeup Reel Table Unit VXR0060
Supply Reel Table Unit VXR0067
XYN3 + F6FXS
Skew Spring VMB0385
Spring VMB0386
Tension Arm Unit VXL0425
XYN3 + F6FXS
XWXV6D, XWXV6F, XWXV6Z
XUC3FP
Adjusting Lever VMA5433
XYN26 + F6FXS
XWYV4D
XUC25FP
XWXV6D, XWXV6F, XWXV6Z
XWYV4D
XUC3FP
Counter Belt (Large) VDV5031
Skew Release Rod VMM0051
Interlocking Lever C VML5098
XYN3 + F6FXS
Takeup Tension Post VMS5305
XUC3FP
XUC25FP
XWYV4D
Back Tension Band Unit VXZ0046
Magnet VSQ0039
XYN3 + C6FXS
Interlocking Lever B VML5097
Stop Action Lever Unit VXL209
Takeup Tension Arm Unit VXL0407
XUC3FP
Arm Release Lever VML0666
Band Holding Angle VMA2784
XYN3 + C6FXS
XWXV4D
XUC3FP
XYN3 + F6FXS
Brake Shoe VMG0174
Brake Angle B VMA2868
Brake Angle Unit VXL0454
XSN26 + 10FX
XUC25FP
Band Guide Collar VMX5076
Brake Release Rod VMM0042
Fixed Tension Arm Assy
VXA152
XTV3 + 6FFXS
XWXV4D
XNG26EFX
Solenoid, Brake Release (SL6305) VSJ23
XUC3FP
Spring VMB128
XSN26 + 8FX
Tension Servo Band Unit VXA263
Solenoid Pin XRHV3XB
Brake Drive Lever B Unit VXL0484
Brake Spring VMB5082
XXE3D4FXKS
XWYV4F
XUC25FP
XTV3 + 6FFXS
XYN3 + F6FXS
Spring, Loading Lock VMB5102
XUC25FP
XWYV4D
Interlocking Lever A VML5096
Band Bracket VMA5592
XUC3FP
Spring VMB5136
XTV3 + 6FFXS
Spring VMB5136
XSN2 + 8FXS
Brake Release Rod VMM0049
XSN26 + 10FX
Interlocking Rod VMM5030
Locking Lever C Unit VXL210
XWYV4D
Micro Switch, Brake Release Solenoid
(S6309) VSM0024
XUC3FP
Solenoid Pin XRHV3XC
XWYV4D
Switch Fiber VMA5377
XYN3 + C6FXS
Neutral Lever Unit VXL0422
Switch Angle VMA5434
XWYV4D
Solenoid, Play Roller (SL6303)
VSJ8
XYN3 + C6FXS
PR Solenoid Lever Unit VXL0423
XUC25FP
XWYV4D
XUC3FP
Solenoid Stopper VMA2739
XYN3 + C6FXS
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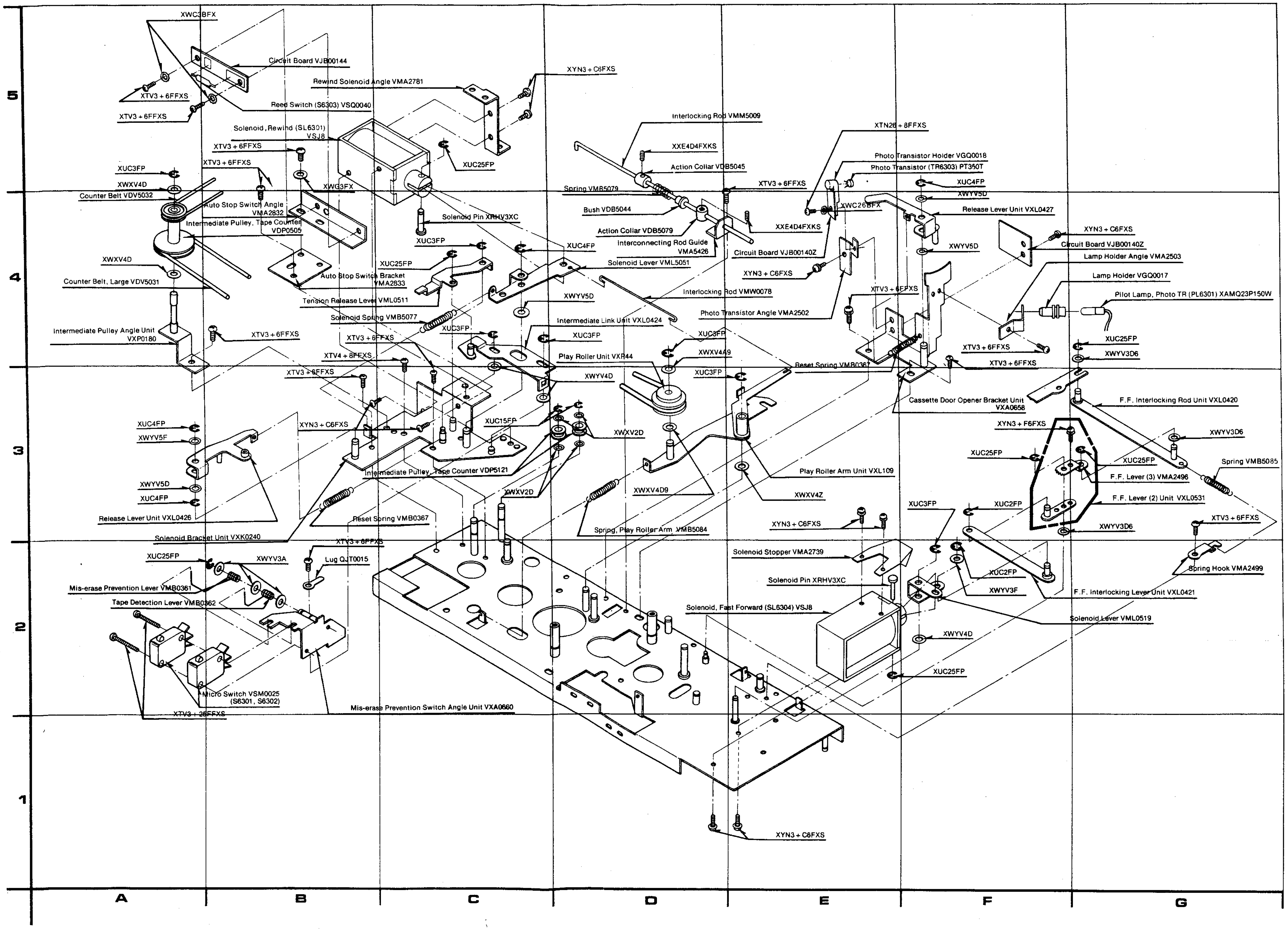
4 *Sub-chassis Section* (2)


XWC3BFX
Circuit Board VJB00144
Rewind Solenoid Angle VMA2781
XYN3 + C6FXS
XTV3 + 6FFXS
Reed Switch (S6303) VSQ0040
XTV3 + 6FFXS
Solenoid, Rewind (SL6301) VSJ8
XTV3 + 6FFXS
XTV3 + 6FFXS
XUC25FP
XUC3FP
XWXV4D
XWG3FX
Counter Belt VDV5032
Auto Stop Switch Angle VMA2832
Intermediate Pulley, Tape Counter VDP0505
Solenoid Pin XRHV3XC
XUC3FP
XWXV4D
XUC25FP
Counter Belt, Large VDV5031
Auto Stop Switch Bracket VMA2833
Tension Release Lever VML0511
Solenoid Spring VMB5077
Intermediate Pulley Angle Unit VXP0180
XTV3 + 6FFXS
XUC3FP
XTV3 + 6FFXS
XTV4 + 8FFXS
XTV3 + 6FFXS
Interlocking Rod VMM5009
XXE4D4FXKS
Action Collar VDB5045
Spring VMB5079
XTV3 + 6FFXS
Bush VDB5044
Action Collar VDB5079
XXE4D4FXKS
Interconnecting Rod Guide VMA5426
XUC4FP
Solenoid Lever VML5051
Circuit Board VJB00140Z
XYN3 + C6FXS
XWYV5D
Interlocking Rod VMW0078
Photo Transistor Angle VMA2502
Intermediate Link Unit VXL0424
XUC3FP
XUC3FP
XWXV4A9
Play Roller Unit VXR44
XWYV4D
XUC3FP
Reset Spring VMB0367
XTN26 + 8FFXS
Photo Transistor Holder VGQ0018
Photo Transistor (TR6303) PT350T
XUC4FP
XWYV5D
XWC26BFX
Release Lever Unit VXL0427
XYN3 + C6FXS
XWYV5D
Circuit Board VJB00140Z
Lamp Holder Angle VMA2503
Lamp Holder VGQ0017
Pilot Lamp, Photo TR (PL6301) XAMQ23P150W
XTV3 + 6FFXS
XUC25FP
XWYV3D6
XTV3 + 6FFXS
XTV3 + 6FFXS
Cassette Door Opener Bracket Unit VXA0658
F.F. Interlocking Rod Unit VXL0420
XUC4FP
XWYV5F
XYN3 + C6FXS
XUC15FP
XWXV2D
XWYV5D
XUC4FP
Intermediate Pulley, Tape Counter VDP5121
XWXV2D
XWXV4D9
Release Lever Unit VXL0426
Reset Spring VMB0367
Spring, Play Roller Arm VMB5084
Solenoid Bracket Unit VXK0240
Play Roller Arm Unit VXL109
XWXV4Z
XYN3 + F6FXS
XWYV3D6
XUC25FP
XUC25FP
Spring VMB5085
F.F. Lever (3) VMA2496
F.F. Lever (2) Unit VXL0531
XUC3FP
XUC2FP
XWYV3D6
XTV3 + 6FFXS
XYN3 + C6FXS
XTV3 + 6FFXS
XUC25FP
XWYV3A
Lug QJT0015
Solenoid Stopper VMA2739
Spring Hook VMA2499
Mis-erase Prevention Lever VMB0361
Solenoid Pin XRHV3XC
XUC2FP
XWYV3F
F.F. Interlocking Lever Unit VXL0421
Tape Detection Lever VMB0362
Solenoid, Fast Forward (SL6304) VSJ8
Solenoid Lever VML0519
XWYV4D
XUC25FP
Micro Switch VSM0025 (S6301, S6302)
Mis-erase Prevention Switch Angle Unit VXA0660
XTV3 + 26FFXS
XYN3 + C6FXS
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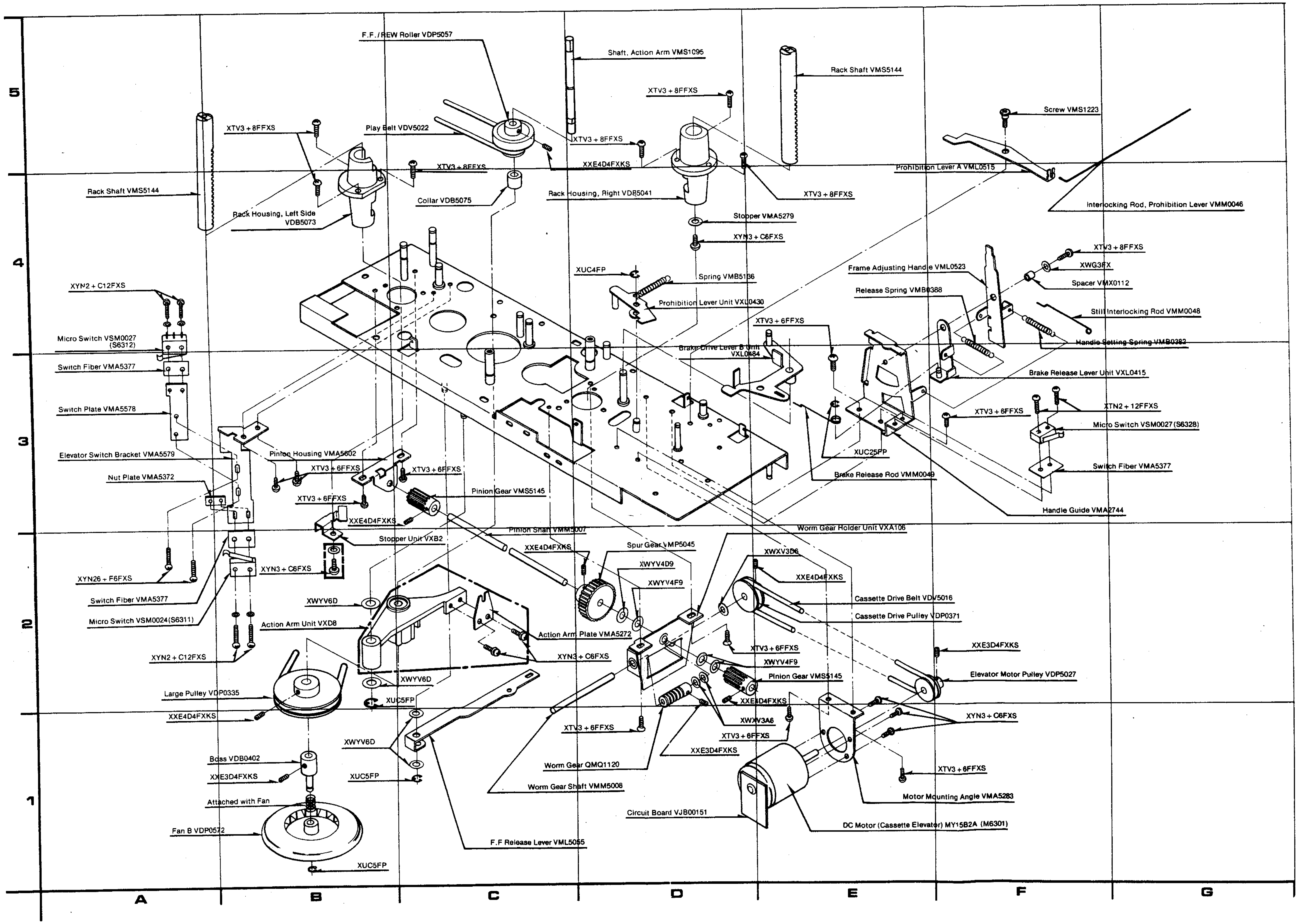
❺ *Sub-chassis Section (3)*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F.F./REW Roller VDP5057
Shaft, Action Arm VMS1095
Rack Shaft VMS5144
XTV3 + 8FFXS
Screw VMS1223
XTV3 + 8FFXS
Play Belt VDV5022
XTV3 + 8FFXS
XTV3 + 8FFXS
XXE4D4FXKS
Prohibition Lever A VML0515
Rack Shaft VMS5144
Collar VDB5075
Rack Housing, Right VDB5041
XTV3 + 8FFXS
Rack Housing, Left Side VDB5073
Interlocking Rod, Prohibition Lever VMM0046
Stopper VMA5279
XYN3 + C6FXS
XTV3 + 8FFXS
XWG3FX
XUC4FP
Spring VMB5136
Frame Adjusting Handle VML0523
Spacer VMX0112
XYN2 + C12FXS
Prohibition Lever Unit VXL0430
Release Spring VMB0388
Still Interlocking Rod VMM0048
XTV3 + 6FFXS
Micro Switch VSM0027 (S6312)
Handle Setting Spring VMB0382
Brake Drive Lever B Unit VXL0484
Switch Fiber VMA5377
Brake Release Lever Unit VXL0415
XTN2 + 12FFXS
XTV3 + 6FFXS
Switch Plate VMA5578
Micro Switch VSM0027 (S6328)
XUC25FP
Elevator Switch Bracket VMA5579
Pinion Housing VMA5602
XTV3 + 6FFXS
XTV3 + 6FFXS
Switch Fiber VMA5377
Brake Release Rod VMM0049
Nut Plate VMA5372
Pinion Gear VMS5145
XTV3 + 6FFXS
Handle Guide VMA2744
XXE4D4FXKS
Worm Gear Holder Unit VXA106
Pinion Shaft VMM5007
Stopper Unit VXB2
XXE4D4FXKS
Spur Gear VMP5045
XWXV3D6
XWYV4D9
XXE4D4FXKS
XYN26 + F6FXS
XYN3 + C6FXS
XWYV4F9
XWYV6D
Cassette Drive Belt VDV5016
Switch Fiber VMA5377
Cassette Drive Pulley VDP0371
Micro Switch VSM0024(S6311)
Action Arm Unit VXD8
Action Arm Plate VMA5272
XXE3D4FXKS
XTV3 + 6FFXS
XYN2 + C12FXS
XYN3 + C6FXS
XWYV4F9
XWYV6D
Pinion Gear VMS5145
Elevator Motor Pulley VDP5027
Large Pulley VDP0335
XUC5FP
XXE3D4FXKS
XXE4D4FXKS
XYN3 + C6FXS
XWXV3A6
XTV3 + 6FFXS
XTV3 + 6FFXS
XWYV6D
XXE3D4FXKS
Boss VDB0402
Worm Gear QMQ1120
XTV3 + 6FFXS
XXE3D4FXKS
XUC5FP
Worm Gear Shaft VMM5008
Motor Mounting Angle VMA5283
Attached with Fan
Circuit Board VJB00151
DC Motor (Cassette Elevator) MY15B2A (M6301)
Fan B VDP0572
F.F Release Lever VML5055
XUC5FP

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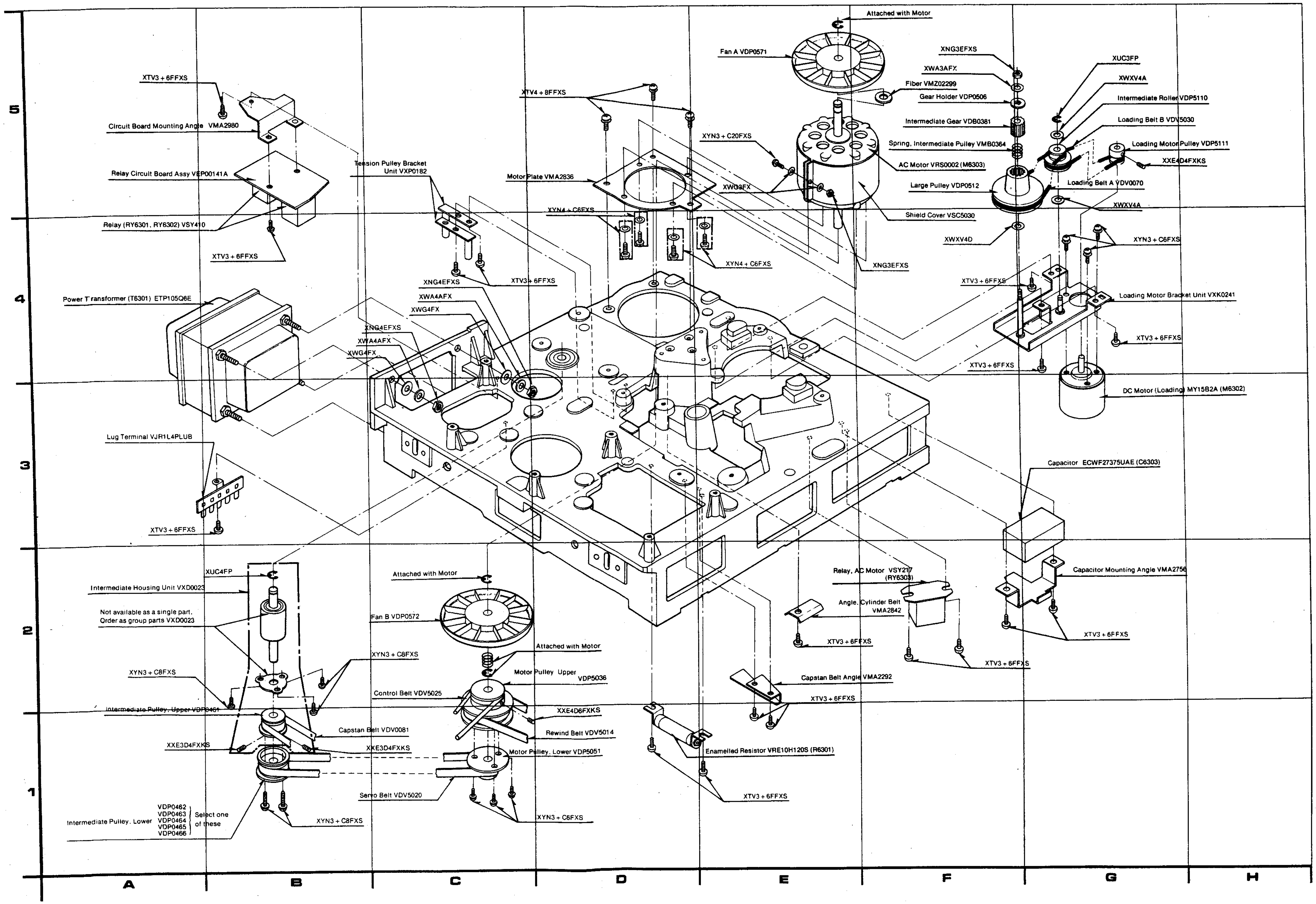
❻ Bottom of Chassis


Attached with Motor
Fan A VDP0571
XNG3EFXS
XWA3AFX
Fiber VMZ02299
Gear Holder VDP0506
Intermediate Gear VDB0381
Spring, Intermediate Pulley VMB0364
AC Motor VRS0002 (M6303)
Large Pulley VDP0512
Shield Cover VSC5030
XWXV4D
XUC3FP
XWXV4A
Intermediate Roller VDP5110
Loading Belt B VDV5030
Loading Motor Pulley VDP5111
XXE4D4FXKS
Loading Belt A VDV0070
XWXV4A
XYN3 + C6FXS
XTV3 + 6FFXS
Loading Motor Bracket Unit VXK0241
XTV3 + 6FFXS
XTV3 + 6FFXS
DC Motor (Loading) MY15B2A (M6302)
XTV3 + 6FFXS
Circuit Board Mounting Angle VMA2980
Relay Circuit Board Assy VEP00141A
Relay (RY6301, RY6302) VSY410
XTV3 + 6FFXS
Tension Pulley Bracket Unit VXP0182
XTV4 + 8FFXS
XYN3 + C20FXS
Motor Plate VMA2836
XWG3FX
XYN4 + C6FXS
XYN4 + C6FXS
XNG3EFXS
XNG4EFXS
XTV3 + 6FFXS
XWA4AFX
XWG4FX
XNG4EFXS
XWA4AFX
XWG4FX
Power Transformer (T6301) ETP105Q6E
Lug Terminal VJR1L4PLUB
XTV3 + 6FFXS
Capacitor ECWF27375UAE (C6303)
Capacitor Mounting Angle VMA2756
Relay, AC Motor VSY217 (RY6303)
Angle, Cylinder Belt VMA2842
XTV3 + 6FFXS
XTV3 + 6FFXS
XTV3 + 6FFXS
Capstan Belt Angle VMA2292
XTV3 + 6FFXS
Enamelled Resistor VRE10H120S (R6301)
XTV3 + 6FFXS
XUC4FP
Intermediate Housing Unit VXD0023
Not available as a single part, Order as group parts VXD0023
XYN3 + C8FXS
XYN3 + C8FXS
Intermediate Pulley, Upper VDP0461
Capstan Belt VDV0081
XXE3D4FXKS
XXE3D4FXKS
Intermediate Pulley, Lower VDP0462 VDP0463 VDP0464 VDP0465 VDP0466 Select one of these
XYN3 + C8FXS
Attached with Motor
Fan B VDP0572
Attached with Motor
Motor Pulley Upper VDP5036
Control Belt VDV5025
XXE4D6FXKS
Rewind Belt VDV5014
Motor Pulley, Lower VDP5051
Servo Belt VDV5020
XYN3 + C6FXS
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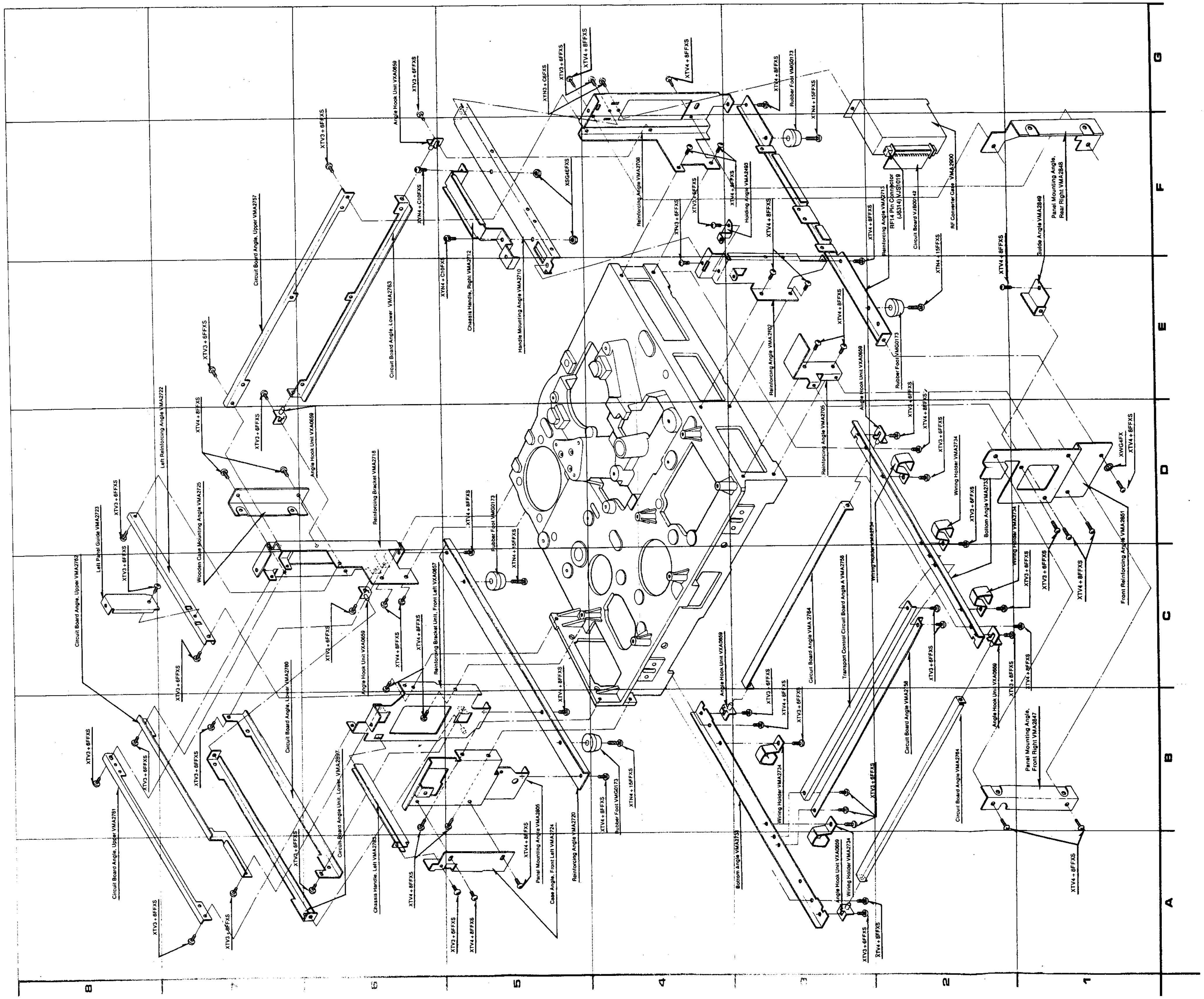
(95) NV9210

⑦ *Chassis Frame Section*


Circuit Board Angle, Upper VMA2757
Circuit Board Angle, Lower VMA2763
Angle Hook Unit VXA0659
XTV3+6FFXS
XTV4+C10FXS
Chassis Handle, Right VMA2712
Handle Mounting Angle VMA2710
Reinforcing Angle VMA2708
XTN3+C6FXS
XTV4+8FFXS
Rubber Foot VMG0173
XTN4+15FFXS
Reinforcing Angle VMA2713
RF 14 Pin Connector (J6314) VJS1019
Circuit Board VJB00142
RF Converter Case VMA2900
Panel Mounting Angle, Rear Right VMA2848
Guide Angle VMA2849
Reinforcing Angle VMA2702
Angle Hook Unit VXA0658
Reinforcing Angle VMA2705
Wiring Holder VMA2734
Bottom Angle VMA2733
XWG4FX
Front Reinforcing Angle VMA2851
Left Reinforcing Angle VMA2722
Wooden Case Mounting Angle VMA2725
Left Panel Guide VMA2723
Circuit Board Angle, Upper VMA2762
Reinforcing Bracket VMA2718
Reinforcing Bracket Unit, Front Left VXA0657
Transport Control Circuit Board Angle A VMA2756
Circuit Board Angle VMA2764
Circuit Board Angle VMA2758
Panel Mounting Angle, Front Right VMA2847
Circuit Board Angle, Upper, Upper VMA2761
Circuit Board Angle, Lower VMA2760
Chassis Handle, Left
Case Angle, Front Left VMA2724
Reinforcing Angle VMA2720
Bottom Angle
Wiring Holder VMA2724
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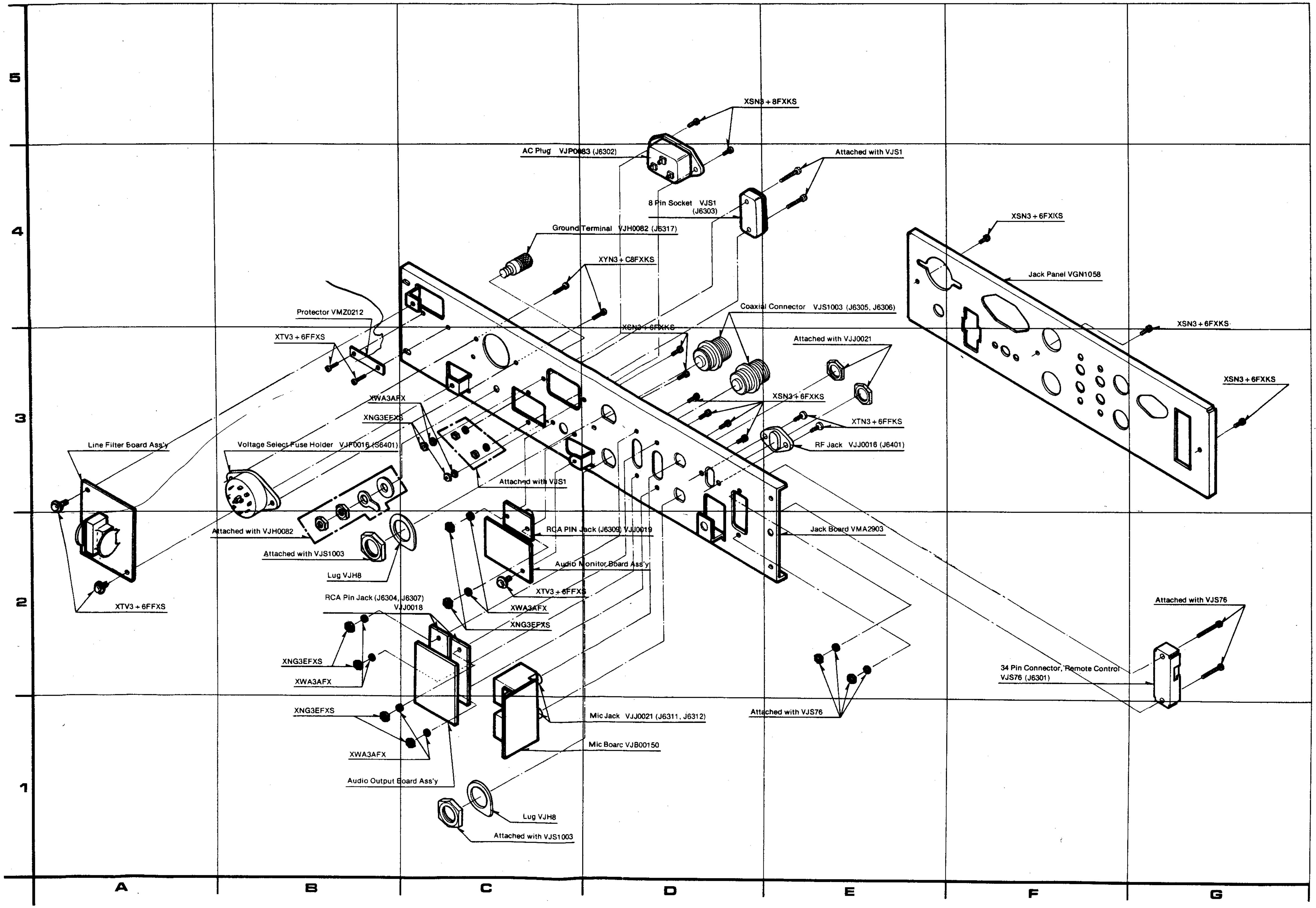
8 Rear (Jack Panel) Section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XSN3 + 8FXKS
AC Plug VJP0083 (J6302)
Attached with VJS1
8 Pin Socket VJS1 (J6303)
Ground Terminal VJH0082 (J6317)
XYN3 + C8FXKS
Protector VMZ0212
XTV3 + 6FFXS
XSN3 + 6FXKS
Coaxial Connector VJS1003 (J6305, J6306)
Attached with VJJ0021
XWA3AFX
XNG3EFXS
XSN3 + 6FXKS
XTN3 + 6FFKS
RF Jack VJJ0016 (J6401)
Line Filter Board Ass'y
Voltage Select Fuse Holder VJF0016 (S6401)
Attached with VJS1
Attached with VJH0082
Attached with VJS1003
Lug VJH8
RCA PIN Jack (J6309) VJJ0019
Jack Board VMA2903
Audio Monitor Board Ass'y
XTV3 + 6FFXS
XTV3 + 6FFXS
RCA Pin Jack (J6304, J6307) VJJ0018
XWA3AFX
XNG3EFXS
XNG3EFXS
XWA3AFX
XNG3EFXS
XWA3AFX
Audio Output Board Ass'y
Mic Jack VJJ0021 (J6311, J6312)
Mic Boarc VJB00150
Lug VJH8
Attached with VJS1003
Attached with VJS76
XSN3 + 6FXKS
Jack Panel VGN1058
XSN3 + 6FXKS
XSN3 + 6FXKS
Attached with VJS76
34 Pin Connector, Remote Control VJS76 (J6301)

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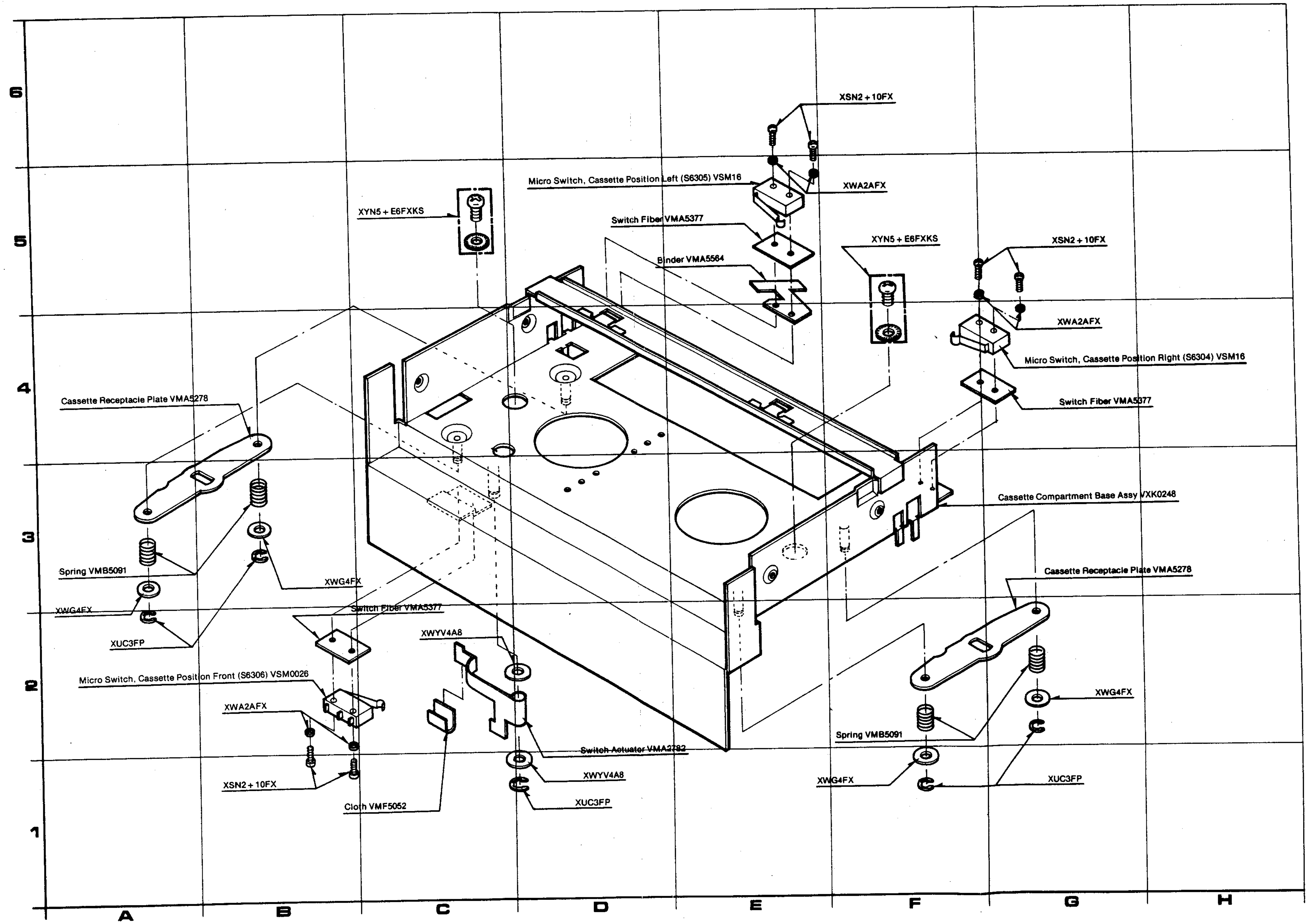
⑨ *Cassette Compartment Base Assy VXK0248*


XSN2+10FX
Micro Switch, Cassette Position Left (S6305) VSM16
XWA2AFX
XYN5+E6FXKS
Switch Fiber VMA5377
Binder VMA5564
XYN5+E6FXKS
XSN2+10FX
XWA2AFX
Micro Switch, Cassette Position Right (S6304) VSM16
Cassette Receptacle Plate VMA5278
Switch Fiber VMA5377
Cassette Compartment Base Assy VXK0248
Cassette Receptacle Plate VMA5278
Spring VMB5091
XWG4FX
XWG4FX
Switch Fiber VMA5377
XUC3FP
XWYV4A8
Micro Switch, Cassette Position Front (S6306) VSM0026
XWG4FX
XWA2AFX
Switch Actuator VMA2782
Spring VMB5091
XWYV4A8
XSN2+10FX
XWG4FX
XUC3FP
Cloth VMF5052
XUC3FP
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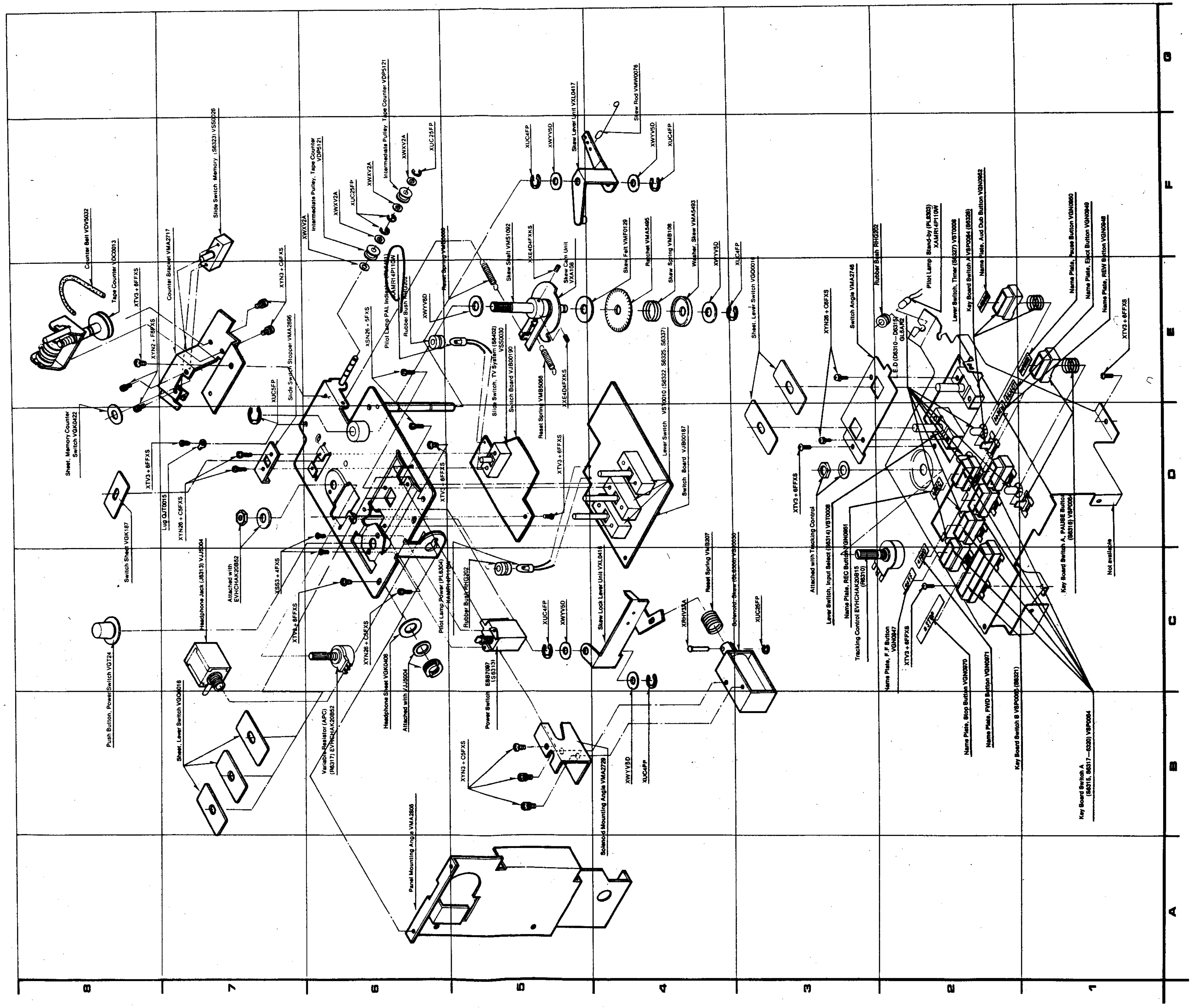
(98) NV 9210

⑩ Right Control Panel Section


Counter Belt VDV5032
Tape Counter VDC0013
Slide Switch Memory (S6323) VSS0026
Counter Bracket VMA2717
XTV3 + 6FFXS
XYN2 + F6FXS
XYN3 + C6FXS
XWXV2A
Intermediate Pulley, Tape Counter VDP5121
XWXV2A
XUC25FP
XWXV2A
Intermediate Pulley, Tape Counter VDP5121
XWXV2A
XUC25FP
Sheet, Memory Counter Switch VGK0422
Slide Switch Stopper VMA2696
XUC5FP
XSN26 + 5FXS
Pilot Lamp PAL Indicator (PL6401) XAMR14P110W
Rubber Bush RHG202
XWYV8D
Reset Spring VMB5066
Skew Shaft VMS1092
XXE4D4FXKS
Skew Cam Unit VXA108
Skew Felt VMF0129
Ratchet VMA5495
Skew Spring VMB106
Washer, Skew VMA5493
XWYV5D
XUC4FP
XUC4FP
XWYV5D
Skew Lever Unit VXL0417
Skew Rod VMW0076
XWYV5D
XUC4FP
Slide Switch, TV System (S6402) VSS0030
Switch Board VJB00190
Reset Spring VMB5066
XXE4D4FXKS
XTV3 + 6FFXS
Lever Switch VST0010 (S6322, S6325, S6337)
Switch Board VJB00187
XTV3 + 6FFXS
XTV3 + 6FFXS
Lug QJT0015
XYN26 + C5FXS
Switch Sheet VGK187
Attached with EVHCHAK20B52
XSS3 + 4FXS
XTV3 + 6FFXS
Headphone Jack (J6313) VJJ5004
Push Button, PowerSwitch VGT24
Sheet, Lever Switch VGQ0016
Variable Resistor (APC) (R6317) EVHCHAK20B52
XYN26 + C5FXS
Headphone Sheet VGK0406
Attached with VJJ5004
Pilot Lamp Power (PL6304) XAMR14P110W
Rubber Bush RHG202
Power Switch ESB7097 (S6313)
XUC4FP
XWYV5D
Skew Lock Lever Unit VXL0416
XRHV3AA
Reset Spring VMB207
Solenoid, Skew (SL6300) VSS0030
XUC25FP
XYN3 + C5FXS
XWYV5D
XUC4FP
Solenoid Mounting Angle VMA2729
Panel Mounting Angle VMA2805
Sheet, Lever Switch VGQ0016
XYN26 + C6FXS
Switch Angle VMA2748
Rubber Bush RHG202
L.E.D (D6310—D6315) GL5AR2
Pilot Lamp Stand-by (PL6303) XAMR14P110W
Lever Switch, Timer (S6327) VST0006
Key Board Switch A VSP0064 (S6326)
Name Plate, Aud Dub Button VGN0952
Name Plate, Pause Button VGN0950
Name Plate, Eject Button VGN0949
Name Plate, REW Button VGN0948
XTV3 + 6FFXS
XTV3 + 6FFXS
Attached with Tracking Control
Lever Switch, Input Select (S6314) VST0008
Name Plate, REC Button VGN0951
Tracking Control EVHCHAK20B15 (R6310)
Name Plate, F.F Button VGN0947
XTV3 + 6FFXS
Name Plate, Stop Button VGN0970
Name Plate, FWD Button VGN0971
Key Board Switch B VSP0065 (S6321)
Key Board Switch A, PAUSE Button (S6318) VSP006
Not available
Key Board Switch A (S6315, S6317—S6320) VSP0064
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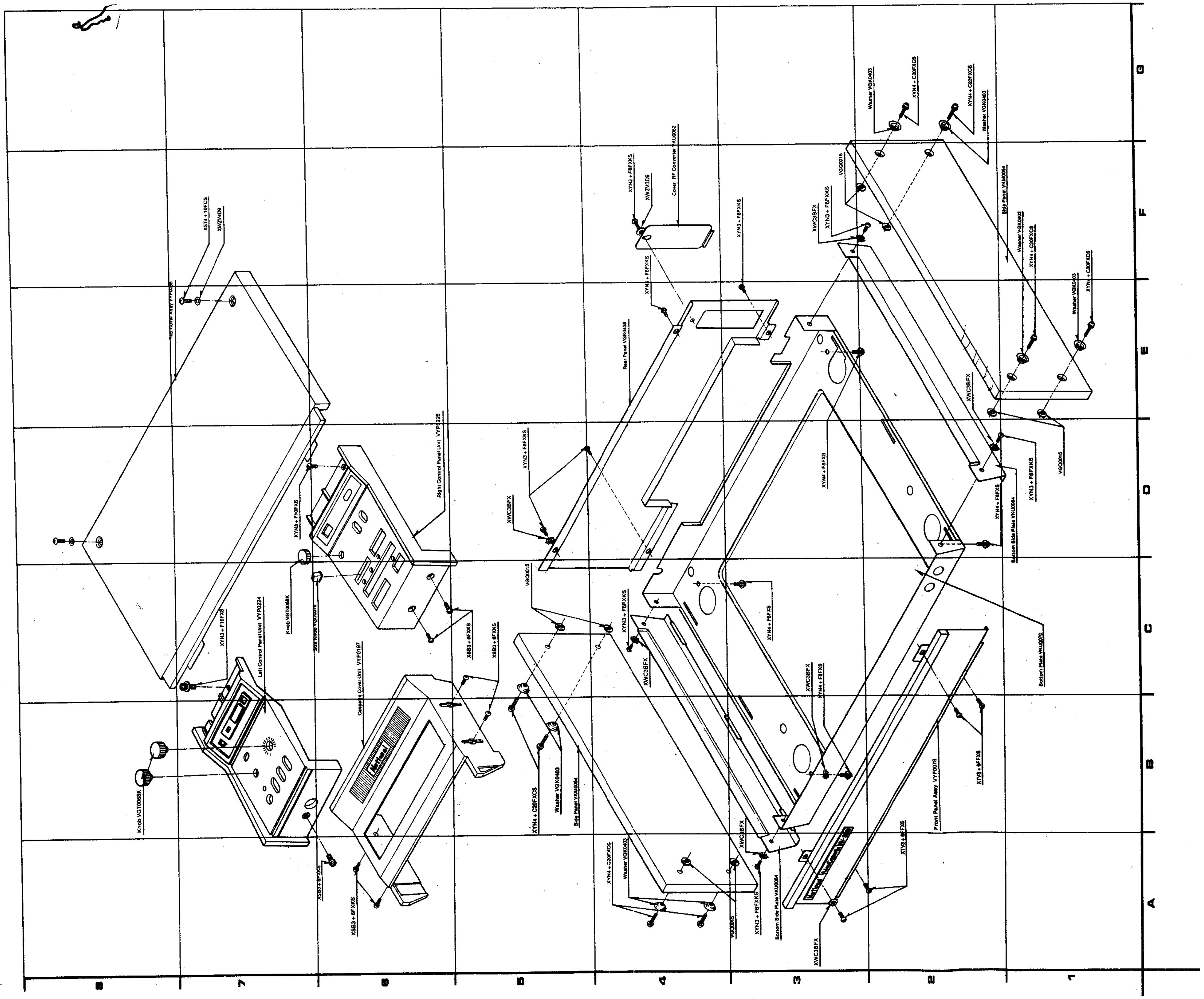
⓫ Casing Section



Top Cover Assy VYF0055
XST4 + 10FCS
XWZV4D9
Knob VGT0068K
XYN3 + F10FXS
Left Control Panel Unit VYP0224
Knob VGT0068K
Still Knob VGD0076
XYN3 + F10FXS
XSB3 + 6FXKS
XSB3 + 6FXKS
Cassette Cover Unit VYP0197
Right Control Panel Unit VYP0226
XSB3 + 6FXKS
XSB3 + 6FXKS
XYN4 + C20FXCS
Washer VGK0403
Side Panel VKM0054
VGQ0015
XWC3BFX
XYN3 + F6FXKS
XYN4 + C20FXCS
Washer VGK0403
XYN3 + F6FXKS
XWC3BFX
VGQ0015
XWC3BFX
XYN3 + F6FXKS
Bottom Side Plate VKU0064
XWC3BFX
XYN4 + F8FXS
XWC3BFX
XYN4 + F8FXS
XTV3 + 6FFXS
Front Panel Assy VYF0078
XTV3 + 6FFXS
Bottom Plate VKU0070
Rear Panel VGK0438
XYN3 + F6FXKS
XYN3 + F6FXKS
XWZV3D9
Cover RF Converter VKU0062
XYN3 + F6FXKS
XYN4 + F8FXS
XWC3BFX
XYN3 + F6FXKS
VGQ0015
Washer VGK0403
XYN4 + C20FXCS
XYN4 + C20FXCS
Washer VGK0403
XWC3BFX
XYN4 + F8FXS
Bottom Side Plate VKU0064
XYN3 + F6FXKS
VGQ0015
Side Panel VKM0054
Washer VGK0403
XYN4 + C20FXCS
Washer VGK0403
XYN4 + C20FXCS
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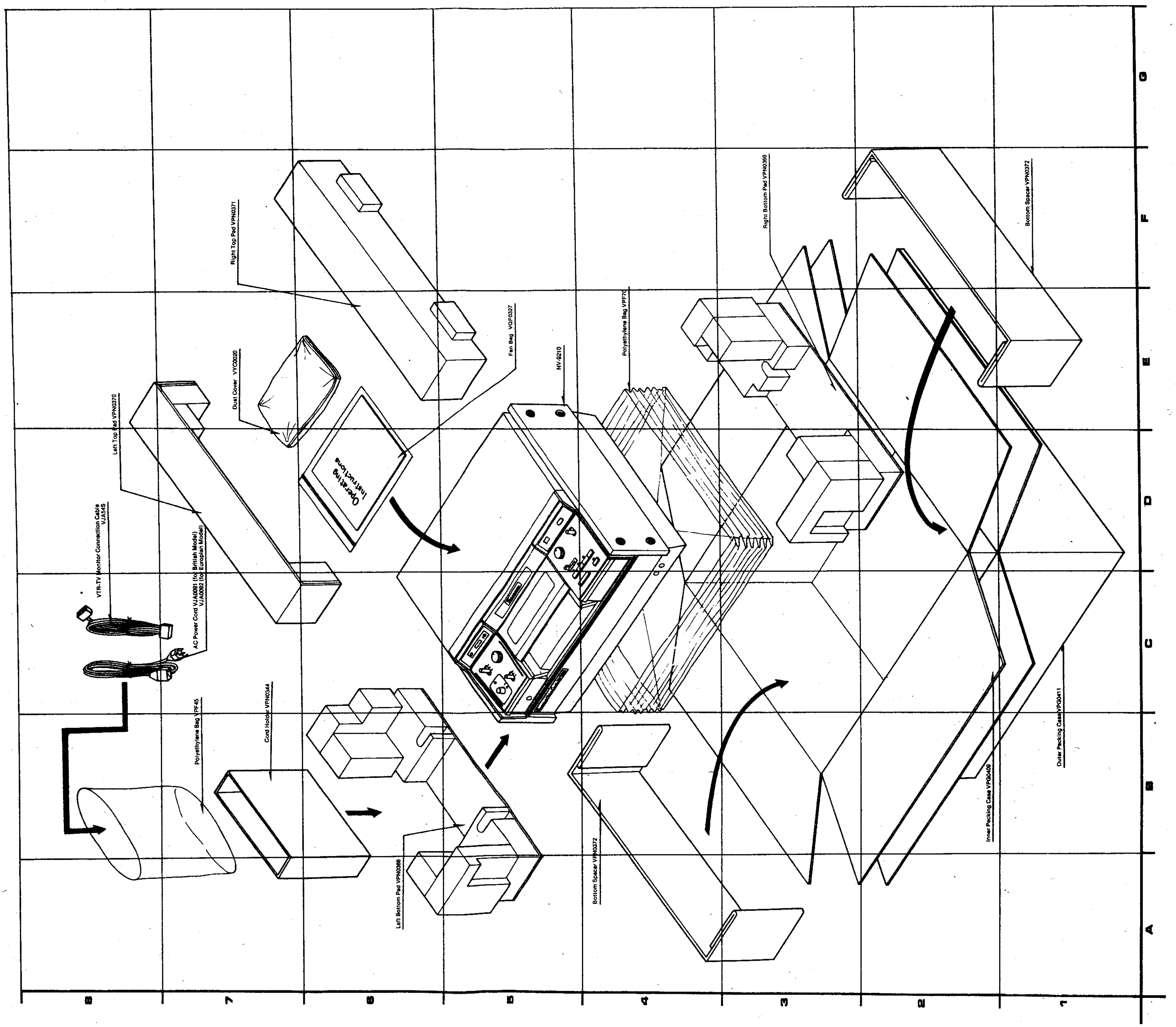
⓬ *Packaging*


Right Top Pad VPN0371
Dust Cover VYC0020
Fan Bag VQF0327
NV-9210
Polyethylene Bag VPF70
Right Bottom Pad VPN0369
Bottom Spacer VPN0372
Left Top Pad VPN0370
Operating Instructions
VTR-TV Monitor Connection Cable VJA54S
AC Power Cord VJA0091 (for British Model)
VJA0092 (for Europian Model)
Polyethylene Bag VPF45
Cord Holder VPN0344
Left Bottom Pad VPN0368
Bottom Spacer VPN0372
Inner Packing Case VPG0409
Outer Packing Case VPG0411
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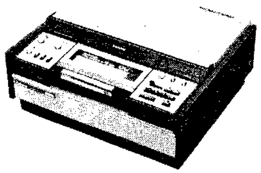
MECHANICAL PARTS LIST

Model No. NV-9210-E/A/B

Notes:

1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by shade have special characteristics important for safety.
   When replacing any of these components, use only the original ones.



Ref. No.		Part No.	Part Name & Description		Remarks
1(7-F)		2H10A-S	Brake Stator	1	
1(2-A)		2SC647-Q	Transistor (TR6301)	1	
1(1-C)		2SC647-Q	Transistor (TR6302)	1	
6(3-G)		ECWF27375UAE	Capacitor (C6303)	1	
10(5-C)		ESB7097	Power Switch (S6313)	1	
6(4-B)		ETP105Q6E	Power Transformer (T6301)	1	
10(2-D)		EVHCHAK20B15	Variable Resistor (Tracking) (R6310)	1	
10(6-C)		EVHCHAK20B52	Variable Resistor (APC) (R6317)	1	
10(2-D)		GL5AR2	L.E.D. (D6310, D6311, D6312, D6313, D6314, D6315)	6	
5(1-E)		MY15B2A	DC Motor (Cassette Elevator) (M6301)	1	
6(3-G)		MY15B2A	DC Motor (Loading) (M6302)	1	
4(5-E)		PT350T	Photo Transistor (TR6303)	1	
2(5-A),4(2-B)		QJT0015	Lug	2	
5(2-D)		QMQ1120	Worm Gear	1	
8(3-A), 10(2-E,4-B)		RHG202	Rubber Bush	3	
1(5-C)		VBR0016	Audio/Control Head (H6303)	1	
1(4-B)		VBS0007	Erase Head (H6304)	1	
2(1-B)		VDB0314	Shaft Stopper	1	
2(4-B,C,3-B)		VDB0340	Intermediate Gear B	3	
6(5-F)		VDB0381	Intermediate Gear	1	
2(5-B)		VDB0382	Loading Arm Boss	1	
5(1-B)		VDB0402	Boss	1	
5(4-D)		VDB5041	Rack Housing, Right Side	1	
4(4-D)		VDB5044	Bush	1	
4(5-D)		VDB5045	Action Collar	1	
2(3-D)		VDB5050	Spring Stopper	1	
5(4-B)		VDB5073	Rack Housing, Left Side	1	
5(4-C)		VDB5075	Collar	1	

Remarks: The column of Ref. No. indicates the number of exploded view and the located position of the parts. Refer to exploded views of 1—12 and see the cross section of the horizontal column (1—up) and the vertical column (A—up).

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
4(4-D)		VDB5079	Action Collar	1	
1(8-D)		VDB5096	Boss, Pressure Roller	1	
10(8-E)		VDC0013	Tape Counter	1	
2(1-B)		VDF0028	Flywheel	1	
5(2-B)		VDP0335	Large Pulley	1	
5(2-D)		VDP0371	Cassette Drive Pulley	1	
6(1-B)		VDP0461	Intermediate Pulley, Upper	1	
6(1-B)		VDP0462	Intermediate Pulley, Lower	(1)	Select one of these
6(1-B)		VDP0463	Intermediate Pulley, Lower	(1)	
6(1-B)		VDP0464	Intermediate Pulley, Lower	(1)	
6(1-B)		VDP0465	Intermediate Pulley, Lower	(1)	
6(1-B)		VDP0466	Intermediate Pulley, Lower	(1)	
4(4-A)		VDP0505	Intermediate Pulley, Tape Counter	1	
6(5-F)		VDP0506	Gear Holder	1	
2(3-A)		VDP0507	Sector Cam Gear	1	
2(3-B,4-C)		VDP0509	Intermediate Gear A	2	
1(6-E)		VDP0510B	Cylinder Pulley (B)	(1)	Select one of these
1(6-E)		VDP0510C	Cylinder Pulley (C)	(1)	
1(6-E)		VDP0510D	Cylinder Pulley (D)	(1)	
1(6-E)		VDP0510E	Cylinder Pulley (E)	(1)	
1(6-E)		VDP0510F	Cylinder Pulley (F)	(1)	
1(6-E)		VDP0510G	Cylinder Pulley (G)	(1)	
1(6-E)		VDP0510H	Cylinder Pulley (H)	(1)	
1(6-E)		VDP0510J	Cylinder Pulley (J)	(1)	
1(6-E)		VDP0510K	Cylinder Pulley (K)	(1)	
6(5-F)		VDP0512	Large Pulley	1	
1(7-B)		VDP0522	Turn Roller	1	
1(6-D)		VDP0523	Loading Roller	3	
6(5-E)		VDP0571	Fan A	1	
5(1-B),6(2-C)		VDP0572	Fan B	2	
5(2-E)		VDP5027	Elevator Motor Pulley	1	
6(1-C)		VDP5036	Motor Pulley Upper	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
6(1-C)		VDP5051	Motor Pulley Lower	1	
5(5-C)		VDP5057	F.F/REW Roller	1	
6(5-G)		VDP5110	Intermediate Roller	1	
6(5-G)		VDP5111	Loading Motor Pulley	1	
4(3-D),10(6-F)		VDP5121	Intermediate Pulley, Tape Counter	4	
2(4-B)		VDR0076	Pressure Roller Guide	1	
6(5-G)		VDV0070	Loading Belt A	1	
2(1-B),6(1-B)		VDV0081	Capstan Belt	1	
6(1-C)		VDV5014	Rewind Belt	1	
5(2-E)		VDV5016	Cassette Drive Belt	1	
6(1-C)		VDV5020	Servo Belt	1	
5(5-C)		VDV5022	Play Belt	1	
6(1-C)		VDV5025	Control Belt	1	
6(5-G)		VDV5030	Loading Belt B	1	
3(4-B),4(3-A)		VDV5031	Counter Belt (Large)	1	
4(4-A)		VDV5032	Counter Belt	1	
1(7-E)		VEG0105	Head Cylinder Unit	1	
1(8-E)		VEH0071	Video Head Disc Unit (Upper Cylinder)	1	
6(5-B)		VEP00141A	Relay Circuit Board Ass'y	1	
11(4-A,5-B)		VGK0403	Washer	8	
10(6-C)		VGK0406	Headphone Sheet	1	
10(8-D)		VGK0422	Sheet, Memory Counter Switch	1	
11(4-D)		VGK0438	Rear Panel	1	
10(8-D)		VGK187	Switch Sheet	1	
10(2-C)		VGN0947	Name Plate, F.F Button	1	
10(2-D)		VGN0948	Name Plate, REW Button	1	
10(2-E)		VGN0949	Name Plate, Eject Button	1	
10(1-E)		VGN0950	Name Plate, Pause Button	1	
10(2-D)		VGN0951	Name Plate, REC Button	1	
10(2-E)		VGN0952	Name Plate, Aud Dub Button	1	
10(2-C)		VGN0970	Name Plate, Stop Button	1	
10(2-C)		VGN0971	Name Plate, FWD Button	1	
10(2-D)		VGN0971	Name Plate, FWD Button	1	
8		VGN1058	Jack Panel	1	
11(1-C,2-A,D,E, 3-B)		VGQ0015	Stopper	8	
10(3-E,7-B)		VGQ0016	Sheet, Lever Switch	5	
4(4-F)		VGQ0017	Lamp Holder	1	
4(4-E)		VGQ0018	Photo Transistor Holder	1	
11(7-D,8-B)		VGT0068K	Knob, Tracking & Skew	3	
10(8-C)		VGT24	Push Button, Power Switch	1	
11(6-C)		VGU0076	Still Knob	1	
12(8-C)		VJA0091	AC Power Cord for British Model	(1)	
12(8-C)		VJA0092	AC Power Cord for Europian Model	(1)	
12(8-C)		VJA54S	VTR-TV Monitor Connection Cable	1	
4(4-F)		VJB00140Z	Circuit Board	1	
7(2-F)		VJB00142	Circuit Board	1	
4(5-B)		VJB00144	Circuit Board	1	
5(1-D)		VJB00151	Circuit Board	1	
1(3-G)		VJB00158	Circuit Board	1	
10(4-D)		VJB00187	Switch Board	1	
10(5-D)		VJB00190	Switch Board	1	
8(3-B)		VJF0016	Voltage Select Fuse Holder (S6401)	1	
8(4-C)		VJH0082	Ground Terminal (J6317)	1	
1(1-B,2-A)		VJH12	Lug	2	
8(1-C)		VJH8	Lug	2	
8(3-E)		VJJ0016	RF Jack (J6401)	1	
8(2-C)		VJJ0018	RCA Pin Jack (J6304, J6307)	2	
8(2-C)		VJJ0019	RCA Pin Jack (J6309)	1	
8(1-C)		VJJ0021	Mic Jack (J6311, J6312)	2	
10(7-C)		VJJ5004	Headphone Jack (J6313)	1	
8(4-D)		VJP0083	AC Plug (J6302)	1	
6(3-B)		VJR1L4PLUB	Lug Terminal	1	
8(4-D)		VJS1	8 Pin Socket (J6303)	1	
8(3-D)		VJS1003	Coaxial Connector (J6305, J6306)	2	
7(2-F)		VJS1019	RF 14 Pin Connector (J6314)	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
8(2-G)		VJS76	34 Pin Connector, Remote Control (J6301)	1	
11(4-B)		VKM0054	Side Panel	1	
11(4-F)		VKU0062	Cover, RF Converter	1	
11(2-E,3-B)		VKU0064	Bottom Side Plate	2	
11(3-C,D)		VKU0070	Bottom Plate	1	
2(3-D)		VMA2268	Brake Release Angle	1	
6(2-E)		VMA2292	Capstan Belt Angle	1	
7(3-F)		VMA2493	Holding Angle	1	
4(3-G)		VMA2496	F.F Lever (3)	1	
4(2-G)		VMA2499	Spring Hook	1	
4(4-E)		VMA2502	Photo Transistor Angle	1	
4(4-F)		VMA2503	Lamp Holder Angle	1	
1(5-F)		VMA2522	Switch Angle	1	
2(4-B)		VMA2534	Gear Box Upper Plate	1	
2(5-B)		VMA2536	Loading Arm B	1	
2(2-B)		VMA2538	Rod Guide B	1	
2(3-B)		VMA2701	Guide Bracket A	1	
7(3-E)		VMA2702	Reinforcing Angle	1	
7(3-E)		VMA2705	Reinforcing Angle	1	
7(4-F)		VMA2708	Reinforcing Angle	1	
7(5-F)		VMA2710	Handle Mounting Angle	1	
7(5-F)		VMA2712	Chassis Handle, Right	1	
7(3-F)		VMA2713	Reinforcing Angle	1	
10(7-E)		VMA2717	Counter Bracket	1	
7(6-C)		VMA2718	Reinforcing Bracket	1	
7(5-C)		VMA2720	Reinforcing Angle	1	
7(7-C)		VMA2722	Left Reinforcing Angle	1	
7(8-C)		VMA2723	Left Panel Guide	1	
7(5-A)		VMA2724	Case Angle, Front Left	1	
7(7-D)		VMA2725	Wooden Case Mounting Angle	1	
10(5-B)		VMA2729	Solenoid Mounting Angle	1	
7(2-C,3-B)		VMA2733	Bottom Angle	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
7(2-C,2-D)		VMA2734	Wiring Holder	6	
3(1-E),4(2-E)		VMA2739	Solenoid Stopper	2	
5(3-E)		VMA2744	Handle Guide	1	
10(3-D)		VMA2746	Switch Angle	1	
6(2-G)		VMA2756	Capacitor Mounting Angle	1	
7(7-E)		VMA2757	Circuit Board Angle, Upper	1	
7(3-B)		VMA2758	Circuit Board Angle	2	
7(7-C)		VMA2760	Circuit Board Angle, Lower	1	
7(8-C)		VMA2761	Circuit Board Angle, Upper	1	
7(7-C)		VMA2762	Circuit Board Angle, Upper	1	
7(6-E)		VMA2763	Circuit Board Angle, Lower	1	
7(2-B,3-C)		VMA2764	Circuit Board Angle	1	
1(6-C)		VMA2780	Loading Ring Drive Gear	1	
4(5-C)		VMA2781	Rewind Solenoid Angle	1	
9(2-C)		VMA2782	Switch Actuator	1	
7(6-B)		VMA2783	Chassis Handle, Left	1	
3(3-C)		VMA2784	Band Holding Angle	1	
1(4-C)		VMA2786	A/C Head Base	1	
1(4-C)		VMA2787	A/C Head Plate	1	
7(5-B)		VMA2805	Panel Mounting Angle	1	
4(4-B)		VMA2832	Auto Stop Switch Angle	1	
4(4-B)		VMB2833	Auto Stop Switch Bracket	1	
6(5-D)		VMA2836	Motor Plate	1	
2(3-D)		VMA2841	Locking Plate	1	
6(2-E)		VMA2842	Angle, Cylinder Belt	1	
7(1-B)		VMA2847	Panel Mounting Angle, Front Right	1	
7(1-F)		VMA2848	Panel Mounting Angle, Rear Right	1	
7(1-E)		VMA2849	Guide Angle	1	
7(1-D)		VMA2851	Front Reinforcing Angle	1	
3(3-F)		VMA2868	Brake Angle B	1	
1(5-E)		VMA2870	Washer, Cylinder Pulley	1	
1(5-D)		VMA2872	Belt Angle	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(5-E)		VMA2873	Belt Guide Plate	1	
2(4-A)		VMA2885	Switch Bracket	1	
10(7-D)		VMA2896	Slide Switch Stopper	1	
7(7-B)		VMA2897	Circuit Board Angle, Lower	1	
7(2-F)		VMA2900	RF Converter Case	1	
8(3-D)		VMA2903	Jack Board	1	
6(5-B)		VMA2980	Circuit Board Mounting Angle	1	
2(3-B)		VMA2999	Loading Arm Stopper	1	
5(2-C)		VMA5272	Action Arm Plate	1	
9(2-F,4-B)		VMA5278	Cassette Receptacle Plate	2	
5(4-D)		VMA5279	Stopper	1	
5(1-E)		VMA5283	Motor Mounting Angle	1	
2(3-D)		VMA5308	Pressure Roller Action Arm	1	
1(4-E)		VMA5351	Lever Stopper	1	
1(7-F)		VMA5360	Angle, Brake Stator	1	
1(2-E)		VMA5365	Spring Hook	1	
2(3-C),5(3-B)		VMA5372	Nut Plate	3	
1(4-F),3(2-C), 2(3-C,4-A,5-A), 5(2-B,3-F,3-A), 9(5-E,2-B)		VMA5377	Switch Fiber	11	
1(7-E)		VMA5405	Tape Loosing	1	
1(6-F)		VMA5407	Mis-threading Prevention Angle	1	
4(4-D)		VMA5426	Interconnecting Rod Guide	1	
3(4-F)		VMA5433	Adjusting Lever	1	
3(2-C)		VMA5434	Switch Angle	1	
10(4-E)		VMA5493	Washer, Skew	1	
10(4-E)		VMA5495	Ratchet	1	
2(5-B)		VMA5523	Arm Holder	1	
9(5-E)		VMA5564	Binder	1	
5(3-A)		VMA5578	Switch Plate	1	
5(3-A)		VMA5579	Elevator Switch Bracket	1	
3(2-B)		VMA5592	Band Bracket	1	
1(4-F)		VMA5600	Actuator A	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
2(4-A)		VMA5601	Actuator B	1	
5(3-B)		VMA5602	Pinion Housing	1	
2(3-C)		VMA5677	Pressure Arm Angle B	1	
2(4-A)		VMB0273	Spring	1	
4(2-B)		VMB0361	Mis-erarse Prevention Lever	1	
4(2-B)		VMB0362	Tape Distinction Lever	1	
6(5-F)		VMB0364	Spring, Intermediate Pulley	1	
2(3-C)		VMB0365	Actuator	1	
4(3-B,4-F)		VMB0367	Reset Spring	2	
2(3-D)		VMB0375	Pressure Spring	1	
5(4-F)		VMB0382	Handle Setting Spring	1	
2(1-C)		VMB0383	Leaf Spring	1	
3(5-D)		VMB0385	Skew Spring	1	
3(5-D)		VMB0386	Spring	1	
5(3-F)		VMB0388	Release Spring	1	
10(4-E)		VMB108	Skew Spring	1	
3(3-G)		VMB128	Spring	1	
2(2-B)		VMB152	Balance Spring	1	
1(4-B)		VMB2	Pressure Spring	3	
10(4-C)		VMB207	Reset Spring	1	
10(5-E)		VMB5066	Reset Spring	1	
1(5-C)		VMB5067	Spring, A/C Head	1	
4(4-C)		VMB5077	Solenoid Spring	1	
4(5-D)		VMB5079	Spring	1	
3(2-F)		VMB5082	Brake Spring	1	
4(3-D)		VMB5084	Spring, Play Roller Arm	1	
4(3-G)		VMB5085	Spring	1	
9(2-F,3-B)		VMB5091	Spring	4	
1(4-E),3(3-B)		VMB5102	Spring, Loading Lock	2	
2(5-B)		VMB5106	Spring, Tape Loading Arm	1	
2(2-C)		VMB5107	Spring, Eccentric Idler	1	
1(7-C)		VMB5128	Spring, Pressure Roller	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(3-E),3(2-F), 5(4-D)		VMB5136	Spring	4	
2(3-C)		VMB5138	Leaf Spring, Pressure Arm	1	
10(5-E)		VMF0129	Skew Felt	1	
9(2-C)		VMF5052	Cloth	1	
7(4-B,5-C)		VMG0173	Rubber Foot	4	
3(3-F)		VMG0174	Brake Shoe	2	
4(4-C)		VML0511	Tension Release Lever	1	
5(5-F)		VML0515	Prohibition Lever A	1	
4(2-F)		VML0519	Solenoid Lever	1	
5(4-F)		VML0523	Frame Adjusting Handle	1	
2(5-B)		VML0524	Tension Release Lever B	1	
2(4-B)		VML0525	Tension Release Lever A	1	
2(3-C)		VML0648	Pressure Arm Angle A	1	
2(3-A)		VML0651	Ring Lock Lever	1	
1(8-C)		VML0653	Angle	1	
3(3-D)		VML0666	Arm Release Lever	1	
4(4-C)		VML5051	Solenoid Lever	1	
5(1-C)		VML5055	F.F Release Lever	1	
2(3-D)		VML5068	Pressure Arm	1	
1(4-E)		VML5094	Third Locking Lever	1	
3(2-F)		VML5096	Interlocking Lever A	1	
3(4-G)		VML5097	Interlocking Lever B	1	
3(4-G)		VML5098	Interlocking Lever C	1	
2(3-D),3(3-G)		VMM0042	Brake Release Rod	1	
1(4-G),5(5-G)		VMM0046	Interlocking Rod, Prohibition Lever	1	
2(4-B)		VMM0047	Skew Release Rod	1	
1(3-E),5(4-F)		VMM0048	Still Interlocking Rod	1	
3(3-G),3(3-E)		VMM0049	Brake Release Rod	1	
3(4-E)		VMM0051	Skew Release Rod	1	
5(2-C)		VMM5007	Pinion Shaft	1	
5(2-D)		VMM5008	Worm Gear Shaft	1	
4(5-D)		VMM5009	Interlocking Rod	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(4-D),3(2-F)		VMM5030	Interlocking Rod	2	
2(2-D)		VMP5044	Metal Cap	1	
5(2-D)		VMP5045	Spur Gear	1	
1(3-D)		VMS0994	Position Setting Pin	2	
2(3-A)		VMS1069	Roller	1	
2(4-A)		VMS1086	Shaft, Gear	1	
2(4-B)		VMS1087	Shaft, Loading Gear	1	
10(5-E)		VMS1092	Skew Shaft	1	
5(5-D)		VMS1095	Shaft, Action Arm	1	
1(7-B)		VMS1194	Turn Post	1	
1(8-B)		VMS1199	Collar, Sub-shaft	1	
5(5-F)		VMS1223	Screw	1	
1(6-C,D)		VMS1224	loading Roller Shaft	2	
1(8-B)		VMS1238	Pressure Shaft	1	
1(8-B)		VMS1239	Roller Pin	1	
1(8-B)		VMS5126	Pressure Roller Shaft	1	
5(4-A,5-E)		VMS5144	Rack Shaft	2	
5(2-B,2-D,3-C)		VMS5145	Pinion Gear	2	
2(1-D)		VMS5158	Capstan Shaft	1	
1(4-F)		VMS5201	Shaft, First Locking Lever	1	
1(3-B,4-D)		VMS5274	Limiter Post	2	
1(4-D)		VMS5276	Limiter Post, Exit	1	
3(4-B)		VMS5305	Takeup Tension Post	1	
3(5-D),10(4-F)		VMW0076	Skew Rod	1	
4(4-D)		VMW0078	Interlocking Rod	1	
5(4-F)		VMX0112	Spacer	1	
1(5-C)		VMX5037	Washer, A/C Head	1	
2(5-B)		VMX5069	Spacer, Tape Loading Arm	1	
1(8-C)		VMX5071	Bushing, Pressure Roller Angle	2	
3(3-C)		VMX5076	Band Guide Collar	1	
1(8-B)		VMX5077	Washer, Pressure Roller	2	
8(3-B)		VMZ0212	Protector	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
6(5-F)		VMZ0229	Fiber	1	
12(7-B)		VPF45	Polyethylene Bag	1	
12(4-D,E)		VPF70	Polyethylene Bag	1	
12(2-B)		VPG0409	Inner Packing Case	1	
12(1-C)		VPG0411	Outer Packing Case	1	
12(7-B)		VPN0344	Cord Holder	1	
12(6-A)		VPN0368	Left Bottom Pad	1	
12(3-E,F)		VPN0369	Right Bottom Pad	1	
12(7-D)		VPN0370	Left Top Pad	1	
12(6-F)		VPN0371	Right Top Pad	1	
12(1,2-F)		VPN0372	Bottom Spacer	2	
12(6-D)		VQF0327	Fan Bag	1	
6(1-D)		VRE10H120S	Enamelled Resistor (R6301)	1	
6(5-E)		VRS0002	AC Motor (M6303)	1	
6(5-E)		VSC5030	Shield Cover	1	
10(3-C)		VSJ0030	Solenoid, Skew (SL6306)	1	
3(3-E)		VSJ23	Solenoid, Brake Release (SL6305)	1	
4(5-C)		VSJ8	Solenoid, Rewind (SL6301)	1	
3(1-E)		VSJ8	Solenoid, Play Roller (SL6303)	1	
4(2-E)		VSJ8	Solenoid, Fast Forward (SL6304)	1	
3(2-C)		VSM0024	Micro Switch, Brake Release Solenoid (S6309)	1	
1(4-F)		VSM0024	Micro Switch, Loading No. 2 Switch (S6310)	1	
5(2-B)		VSM0024	Micro Switch, Cassette Down (S6311)	1	
4(2-A)		VSM0025	Micro Switch Mis-erase Prevention (S6302)	1	
4(2-A)		VSM0025	Micro Switch, KC/KCA Select (S6301)	1	
9(2-B)		VSM0026	Micro Switch, Cassette Position Front (S6306)	1	
2(3-C)		VSM0027	Micro Switch, Loading No. 1 (S6307)	1	
2(4-A)		VSM0027	Micro Switch, Unloading Completion (S6308)	1	
5(4-A)		VSM0027	Micro Switch, Cassette Up (S6312)	1	
5(3-E,3-F)		VSM0027	Micro Switch, Still Lever (S6328)	1	
2(5-A)		VSM0027	Micro Switch, AC Motor (S6329)	1	
9(4-G)		VSM16	Micro Switch, Cassette Position Right (S6304)	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
9(5-E)		VSM16	Micro Switch, Cassette Position Left (S6305)	1	
10(1-D)		VSP0064	Key Board Switch A, PAUSE Button (S6316)	1	
10(1-D)		VSP0064	Key Board Switch A, EJECT Button (S6317)	1	
10(1-D)		VSP0064	Key Board Switch A, REW Button (S6318)	1	
10(1-D)		VSP0064	Key Board Switch A, FWD Button (S6319)	1	
10(2-D)		VSP0064	Key Board Switch A, F.F Button (S6320)	1	
10(2-D)		VSP0064	Key Board Switch A, REC Button (S6315)	1	
10(2-D)		VSP0064	Key Board Switch A, A Dub Button (S6326)	1	
10(2-C)		VSP0065	Key Board Switch B, STOP Button (S6321)	1	
3(4-A)		VSQ0039	Magnet	1	
4(5-B)		VSQ0040	Reed Switch, Safety (S6303)	1	
10(7-F)		VSS0026	Slide Switch, Memory (S6323)	1	
10(5-D)		VSS0030	Slide Switch, TV System (S6402)	1	
10(2-D)		VST0008	Lever Switch, Input Select (S6314)	1	
10(2-E)		VST0008	Lever Switch, Timer (S6327)	1	
10(4-D)		VST0010	Lever Switch, Audio Monitor (S6325)	1	
10(4-D)		VST0010	Lever Switch, Dub (S6322)	1	
10(4-D)		VST0010	Lever Switch, Mode Select (S6337)	1	
6(2-F)		VSY217	Relay, AC Motor (RY6303)	1	
6(5-B)		VSY410	Relay, Elevator Motor (RY6301)	1	
6(5-B)		VSY410	Relay, Loading Motor (RY6302)	1	
2(4-C)		VXA0652	Drive Gear Base Unit	1	
1(3-E)		VXA0653	Locking Lever Bracket Unit	1	
1(2-F)		VXA0654	Still Adjusting Lever Bracket Unit	1	
2(2-A)		VXA0656	Loading Guide Unit	1	
7(6-B)		VXA0657	Reinforcing Bracket Unit, Front Left	1	
4(4-F)		VXA0658	Cassette Door Opener Bracket Unit	1	
7(2-C,3-A)		VXA0659	Angle Hook Unit	7	
4(2-B)		VXA0660	Mis-erase Prevention Switch Angle Unit	1	
5(2-D)		VXA106	Worm Gear Holder Unit	1	
10(5-E)		VXA108	Skew Cam Unit	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(7-C)		VXA119	Loading Roller Shaft Unit	1	
3(3-D)		VXA152	Fixed Tension Arm Assy	1	
3(3-B)		VXA263	Tension Servo Band Unit	1	
5(2-B)		VXB2	Stopper Unit	1	
6(2-B)		VXD0023	Intermediate Housing Unit	1	
2(1-B)		VXD0027	Oil Seal Unit	1	
5(2-B)		VXD8	Action Arm Unit	1	
1(6-E)		VXJ0016	Motor Shaft Slip Ring Unit	1	
4(3-C)		VXK0240	Solenoid Bracket Unit	1	
6(4-G)		VXK0241	Loading Motor Bracket Unit	1	
2(3-B)		VXK0242	Gear Box Base Unit	1	
2(4-C)		VXK0243	Loading Drive Gear Bracket Unit	1	
9(3-F)		VXK0248	Cassette Compartment Base Assy	1	
3(4-A)		VXL0407	Takeup Tension Arm Unit	1	
2(2-B)		VXL0408	Friction Lever Unit	1	
2(4-A)		VXL0409	Sector Wheel Unit	1	
1(5-E)		VXL0410	Locking Lever A Unit	1	
1(4-E)		VXL0411	Locking Lever B Unit	1	
1(4-E)		VXL0412	First Locking Lever Unit	1	
1(3-F)		VXL0413	Still Adjusting Lever A Unit	1	
1(3-F)		VXL0414	Still Adjusting Lever B Unit	1	
5(3-F)		VXL0415	Brake Release Lever Unit	1	
10(4-C)		VXL0416	Skew Lock Lever Unit	1	
10(4-F)		VXL0417	Skew Lever Unit	1	
4(3-G)		VXL0420	F.F Interlocking Rod Unit	1	
4(2-F)		VXL0421	F.F Interlocking Lever Unit	1	
8(2-E,F)		VXL0422	Neutral Lever Unit	1	
3(2-E)		VXL0423	PR Solenoid Lever Unit	1	
4(4-C)		VXL0424	Intermediate Link Unit	1	
3(5-E)		VXL0425	Tension Arm Unit	1	
4(3-B)		VXL0426	Release Lever Unit	1	
4(4-F)		VXL0427	Release Lever Unit	1	
2(5-B)		VXL0428	Loading Arm Unit	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1(7-C)		VXL0429	Pressure Roller Angle Unit	1	
5(4-D)		VXL0430	Prohibition Lever Unit	1	
2(2-D)		VXL0431	Eccentric Idler Arm Unit	1	
3(3-F)		VXL0454	Brake Angle Unit	1	
1(8-C)		VXL0483	Pressure Roller Arm Unit	1	
3(3-F),5(3-E)		VXL0484	Brake Drive Lever B Unit	1	
4(3-G)		VXL0531	F.F Lever (2) Unit	1	
4(3-E)		VXL109	Play Roller Arm Unit	1	
3(4-F)		VXL209	Stop Action Lever Unit	1	
3(2-F)		VXL210	Locking Lever C Unit	1	
2(3-B)		VXP0177	Loading Gear Unit	1	
2(4-C)		VXP0178	Drive Gear Unit	1	
1(6-C,7-C)		VXP0179	Loading Ring Unit	1	
4(4-A)		VXP0180	Intermediate Pulley Angle Unit	1	
6(4-C)		VXP0182	Tension Pulley Bracket Unit	2	
2(1-C)		VXP0184	Eccentric Idler Unit	1	
1(8-B)		VXP41	Pressure Roller Unit	1	
4(3-D)		VXP44	Play Roller Unit	1	
3(5-B)		VXR0060	Takeup Reel Table Unit	1	
3(4-C)		VXR0067	Supply Reel Table Unit	1	
1(6-E)		VXS23	Motor Shaft Slip Brush Unit	1	
3(4-C)		VXZ0046	Back Tension Band Unit	1	
12(7-D,E)		VYC0020	Dust Cover	1	
11(7-E,D)		VYF0065	Top Cover Assy	1	
11(2-B)		VYF0078	Front Panel Assy	1	
11(6-B)		VYP0197	Cassette Cover Unit	1	
11(7-B)		VYP0224	Left Control Panel Unit	1	
11(6-D)		VYP0226	Right Control Panel Unit	1	
4(4-G)		XAMQ23P150W	Pilot Lamp, Photo TR (PL6301)	1	
10(2-E)		XAMR14P110W	Pilot Lamp, Stand-by (PL6303)	1	
10(5-C,5-E)		XAMR14P110W	Pilot Lamp, Power (PL6304), PAL Indicator (PL6401)	2	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Nut		
3		XNG26EFX		1	
1,6,8		XNG3EFXS		11	
1,2,6,7		XNG4EFXS		9	
			Solenoid Pin		
10		XRHV3XA		1	
3		XRHV3XB		1	
3,4		XRHV3XC		3	
2		XRHZ3XC		1	
			Screw		
11		XSB3+6FXKS		7	
9		XSN2+10FX		6	
1		XSN2+3BNS		3	
3		XSN2+8FXS		2	
1,3		XSN26+10FXS		3	
1		XSN26+15FXS		1	
1		XSN26+6BFN		1	
3		XSN26+8FX		1	
1		XSN3+15FXS		3	
1		XSN3+20FXS		1	
8		XSN3+6FXKS		9	
8		XSN3+8FFKS		2	
2		XSN4+15FXS		1	
1		XSS26+10FXS		1	
1		XSS26+6FX		1	
10		XSS3+4FXS		2	
11		XST4+10FCS		2	
1,2,5		XTN2+12FFXS		6	
4		XTN26+8FFXS		1	
8		XTN3+6FFXKS		2	
7		XTN4+15FFXS		4	
4		XTV3+25FFXS		2	
11		XTV3+6FFXRS		1	
1,2,3,4,5,6,7,8, 10,11		XTV3+6FFXS		125	
5		XTV3+8FFXS		7	
1,4,6,7		XTV4+8FFXS		43	
			Set Screw		
1		XXE3A3FP		1	
1		XXE3A8FXKS		2	
3,5,6		XXE3D4FXKS		6	
1		XXE3D6FXKS		1	
2		XXE3D6FXS		1	
2,4,5,6,10		XXE4D4FXKS		14	
2		XXE4D4FXS		4	
6		XXE4D6FXKS		1	
			Screw		
2,5		XYN2+C12FXS		8	
10		XYN2+F6FXS		2	
10		XYN26+C5FXS		5	
10		XYN26+C6FXS		2	
2,3,5		XYN26+F6FXS		5	
6		XYN3+C20FXS		1	
10		XYN3+C5FXS		2	
1,2,3,4,5,6,7,10		XYN3+C6FXS		30	
8		XYN3+C8FXKS		2	
6		XYN3+C8FXS		5	
11		XYN3+F10FXS		2	
11		XYN3+F6FXKS		8	
1,2,3,4		XYN3+F6FXS		15	
7		XYN4+C10FXS		2	
11		XYN4+C20FXCS		8	
6		XYN4+C6FXS		4	
1		XYN4+F10FXS		2	
1		XYN4+F25FXS		2	
1,11		XYN4+F8FXS		5	
9		XYN5+E6FXKS		2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Snap Ring		
1		XUB7FX		1	
4,10		XUC15FP		5	
1,4		XUC2FP		3	
1,2,3,4,5,10		XUC25FP		18	
1,2,3,4,5,6,9		XUC3FP		33	
1,2,4,5,6,10		XUC4FP		17	
1,5,10		XUC5FP		3	
2		XUC6FP		1	
2		XUC7FP		1	
1,2		XUC8FP		2	
			Bolt		
2		XVE3BFXS		2	
1		XVE3C6FXS		2	
2		XVE3C8FXS		2	
1		XVE4C10FXKS		3	
2		XVF4B35FXS		1	
			Spring Washer		
9		XWA2AFX		6	
1,2,6,8		XWA3AFX		15	
1,6		XWA4AFX		8	
			Sword Tooth Washer		
1		XWC26BFN		1	
4		XWC26BFX		1	
1,4,11		XWC3BFX		9	
11		XWC4BFX		2	
			Flat Washer		
1		XWG26BN		1	
1,2,4,5,6		XWG3FX		12	
6,7,9		XWG4FX		9	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Polyslider Washer		
10		XWXV2A		4	
4		XWXV2D		4	
5		XWXV3A6		2	
1		XWXV3D		4	
1,5		XWXV3D6		1	
2,6		XWXV4A		7	
4		XWXV4A9		1	
1,3,4,6		XWXV4D		11	
4		XWXV4D9		1	
4		XWXV4Z		1	
2		XWXV5A		1	
2		XWXV5D		3	
1		XWXV5D9		2	
3		XWXV6D		(2)	
3		XWXV6F		(2)	
3		XWXV6Z		(2)	
			Fiber Washer		
4		XWYV3A		3	
4		XWYV3D6		3	
4		XWYV3F		1	
1,2		XWYV4A		3	
9		XWYV4A8		2	
1,2,3		XWYV4D		12	
5		XWYV4D9		1	
3		XWYV4F		1	
5		XWYV4F9		3	
2,4,10		XWYV5D		10	
4		XWYV5F		1	
1,5,10		XWYV6D		6	
2		XWYV8D		1	
2		XWYV8F		1	
1,2		XWYV10D		2	
2		XWYV10F		2	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Mylar Washer		
11		XWZV4D9		1	
11		XWZV3D9		1	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-9210-E/A/B

Notes:
1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified by shade have special characteristics important for safety.
When replacing any of these components, use only the original ones.

Notes:
1. Unless otherwise specified.
All resistors are in OHMS (Ω), 1/4W ± 5% carbon.
K = 1,000 Ω, M = 1,000 KΩ
All capacitors are in MICROFARADS (μF), ±10%,
P = μμF.

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Power Supply Circuit Board Assy	1	
			Sub-Transport Control Circuit Board Assy	1	
			Audio Circuit Board Assy	1	
			Video Recording Circuit Board Assy	1	
			Video Playback Circuit Board Assy	1	
			Transport Control Circuit Board Assy	1	
			Servo Control Circuit Board Assy	1	
			Head Amp Circuit Board Assy	1	
			Jack Board Assy	1	
			Wiring A Assy	1	
			Wiring B Assy	1	
		VMZ0206	Cover, Power Supply Circuit Board	1	
		VJR4	Clamper	1	
		XSN4+6FXS	Screw	1	
		XTN4+6FXS	Tapping Screw	1	
		XTV3+6FFXS	Tapping Screw	11	
		XTV3+6FFR	Tapping Screw	20	
		XWC4B	Washer	1	
		XWE3D8FX	Washer	1	
		XYN3+C8FXS	Screw with Spring	1	
		XYN5+E6FXKS	Screw	2	
		XBA2C20TR0	Fuse 2A	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
POWER SUPPLY, SUB-TRANSPORT CIRCUIT P.C. BOARD					
			Power Supply Circuit Board Assy	1	
			Sub-transport Control Circuit Board Assy	1	
		VMA2758	Mounting Angle A	1	
		VMA2764	Mounting Angle B	1	
		XTV3+6FFXS	Tapping Screw	10	
POWER SUPPLY CIRCUIT BOARD ASSY					
Transistors					
TR101		2SC1384	Si NPN AF Power Amp. & Driver	1	
TR102		2SC1318	Si NPN AF Power Amp. & Driver	1	
TR103		2SC1384	Si NPN AF Power Amp. & Driver	1	
TR104		2SC1318	Si NPN AF Power Amp. & Driver	1	
Diodes					
D101		RD56EC	Si Zener	1	
D102—105		ERC0104L	Si	4	
D106		RD56EC	Si Zener	1	
D107		MA150	Si High Speed Switching	1	
D108—111		ERC0104L	Si	4	
D116,117		MA150	Si High Speed Switching	2	
Resistors					
R101		ERD25TJ681	680	1	
R102		EVLS6AA00B52	Variable 500	1	
R103		ERD25TJ821	820	1	
R104—106		ERD25TJ102	1K	3	
R107		ERQ12HJ3R9	Metal 1/2W 3.9	1	
R108		ERD14TJ151	150	1	
R109		ERD25TJ152	1.5K	1	
R110		EVLS6AA00B52	Variable 500	1	
R111		ERD25TJ391	390	1	
R112		ERD25TJ182	1/2W 1.8K	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R113		ERD25TJ102	1K	1	
R114		ERQ12HJ3R9	Metal 1/2W 3.9	1	
			Capacitors		
C101		ECEA16V470LU	Electrolytic 16V 470	1	
C102		ECQM1H473KZW	Myler 100V 0.047	1	
C103		ECKW1H103PF	Ceramic 10'V 0.01	1	
C104		ECEA25V100L	Electrolytic 25V 100	1	
C105		ECET35R472SW	Electrolytic 35V 4700	1	
C106−109		ECQM1H104KZW	Myler 100V 0.1	4	
C110		ECEA35V470LU	Electrolytic 35V 470	1	
C111		ECEA25V10L	Electrolytic 25V 10	1	
C112		ECQM1H473KZW	Myler 100V 0.047	1	
C113		ECKW1H103PF	Ceramic 10'V 0.01	1	
C114		ECEA50V100L	Electrolytic 50V 100	1	
C115		ECET50R332SW	Electrolytic 50V 3300	1	
C116−119		ECQM1H104KZW	Myler 100V 0.1	4	
C120		ECEA16V10L	Electrolytic 16V 10	1	
			Fuses		
		XBA2C315TR0	3.15A	1	
		XBA2C40TR0	4A	1	
			Connectors		
P11		VJP0090	5 Pin	1	
P12		VJP0089	3 Pin	1	
P14−17		VJP0091	10 Pin	4	
P18		VJP0090	5 Pin	1	
			Miscellaneous		
		TEL312	GT Pin	20	
		VJH24	Check Terminal	7	
		VJH0073	Fuse Holder	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			TRANSPORT CONTROL CIRCUIT BOARD ASSY		
			Transistors		
TR601		2SA564	Si PNP General Use for Small Signal	1	
TR602		2SC1684	Si NPN General Use for Small Signal	1	
TR603		2SC1847	Si NPN Medium Power Output	1	
TR604		2SA719	Si PNP AF Power Amp. & Driver	1	
TR605−612		2SC1684	Si NPN General Use for Small Signal	8	
TR613		2SC1847	Si NPN Medium Power Output	1	
TR614−617		2SC1684	Si NPN General Use for Small Signal	4	
TR619		2SC1685	Si NPN General Use for Small Signal	1	
TR620		2SA720	Si PNP AF Power Amp. & Driver	1	
TR621		2SC1685	Si NPN General Use for Small Signal	1	
TR622		2SA720	Si PNP AF Power Amp. & Driver	1	
TR623−626		2SC1684	Si NPN General Use for Small Signal	4	
TR627		2SC1317	Si NPN AF Power Amp. & Driver	1	
TR628		2SC1684	Si NPN General Use for Small Signal	1	
TR629,630		2SC1685	Si NPN General Use for Small Signal	2	
TR631−638, 641−648,652, 654−658		2SC1684	Si NPN General Use for Small Signal	22	
			Diodes		
D601		MA150	Si High Speed Switching	1	
D602−604		MA150	Si High Speed Switching	3	
D605		MA150	Si High Speed Switching	1	
D606−612,614		MA150	Si High Speed Switching	8	
D617		MA150	Si High Speed Switching	1	
D618,619		MA150	Si High Speed Switching	2	
D620,621		MA150	Si High Speed Switching	2	
D622		MA150	Si High Speed Switching	1	
D623,624		MA150	Si High Speed Switching	2	
D625,626		MA150	Si High Speed Switching	2	
D627		MA150	Si High Speed Switching	1	
D628−634		MA150	Si High Speed Switching	7	
D635,636		MA150	Si High Speed Switching	2	
D637,638		MA150	Si High Speed Switching	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
D639		MA150	Si High Speed Switching	1	
D640,641		MA150	Si High Speed Switching	2	
D642		MA150	Si High Speed Switching	1	
D643		MA150	Si High Speed Switching	1	
D644,645		MA150	Si High Speed Switching	2	
D646,647		MA150	Si High Speed Switching	2	
D648–651		MA150	Si High Speed Switching	4	
D652,653		MA150	Si High Speed Switching	2	
D654–657		MA150	Si High Speed Switching	4	
D658		MA150	Si High Speed Switching	1	
D659		MA150	Si High Speed Switching	1	
D660,661		MA150	Si High Speed Switching	2	
D662,664–666		MA150	Si High Speed Switching	4	
D667		MA150	Si High Speed Switching	1	
D668,669		MA150	Si High Speed Switching	2	
D670–672		MA150	Si High Speed Switching	3	
D673,674		MA150	Si High Speed Switching	2	
D675–678		MA150	Si High Speed Switching	4	
D679,680		MA150	Si High Speed Switching	2	
D681,682		MA150	Si High Speed Switching	2	
D683		MA150	Si High Speed Switching	1	
D684		MA150	Si High Speed Switching	1	
D685		MA150	Si High Speed Switching	1	
D686		MA150	Si High Speed Switching	1	
D687		MA150	Si High Speed Switching	1	
D688		MA150	Si High Speed Switching	1	
D689		MA150	Si High Speed Switching	1	
D691–695		MA150	Si High Speed Switching	5	
D697,698		MA150	Si High Speed Switching	2	
D699		MA150	Si High Speed Switching	1	
D6100		MA150	Si High Speed Switching	1	
D6101,6105		MA150	Si High Speed Switching	2	
D6106		MA150	Si High Speed Switching	1	
D6107		MA150	Si High Speed Switching	1	
D6108		MA150	Si High Speed Switching	1	
D6109		MA150	Si High Speed Switching	1	
D6110,6111		MA150	Si High Speed Switching	2	
D6112		MA150	Si High Speed Switching	1	
D6113		MA150	Si High Speed Switching	1	
D6114–6116		MA150	Si High Speed Switching	3	
D6117,6118		MA150	Si High Speed Switching	2	
D6119		MA150	Si High Speed Switching	1	
D6120,6122,6123		MA150	Si High Speed Switching	3	
D6124		MA150	Si High Speed Switching	1	
D6125–6127		MA150	Si High Speed Switching	3	
D6129		MA150	Si High Speed Switching	1	
D6130		MA150	Si High Speed Switching	1	
D6131		MA150	Si High Speed Switching	1	
D6132–6135		MA150	Si High Speed Switching	4	
D6136		MA150	Si High Speed Switching	1	
D6137–6140		MA150	Si High Speed Switching	4	
D6141		MA150	Si High Speed Switching	1	
D6142		MA150	Si High Speed Switching	1	
D6143,6144		MA150	Si High Speed Switching	2	
D6145		MA150	Si High Speed Switching	1	
D6146		MA150	Si High Speed Switching	1	
D6147,6148		MA150	Si High Speed Switching	2	
			Resistors		
R601		ERD25TJ103	10K	1	
R602		ERD25TJ273	27K	1	
R603		ERD25TJ563	56K	1	
R604		ERD25TJ273	27K	1	
R605		ERQ12HJ3R9	Metal 1/2W 3.9	1	
R606		ERD12TJ331	1/2W 330	1	
R607		ERD25TJ272	2.7K	1	
R608		ERD25TJ562	5.6K	1	
R609		ERQ12HJ3R9	Metal 1/2W 3.9	1	
R610		ERD25TJ103	10K	1	
R611		ERD25TJ562	5.6K	1	

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MK MW 9210

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R612		ERD25TJ152	1.5K	1	
R613		ERD25TJ272	2.7K	1	
R614		ERD25TJ273	27K	1	
R615		ERD25TJ103	10K	1	
R616		ERD25TJ273	27K	1	
R617		ERD25TJ272	2.7K	1	
R618		ERD25TJ273	27K	1	
R619		ERD25TJ103	10K	1	
R620,621		ERD25TJ223	22K	2	
R622		ERD25TJ103	10K	1	
R623		ERD25TJ563	56K	1	
R624		ERD25TJ273	27K	1	
R625		ERD25TJ103	10K	1	
R626		ERD25TJ272	2.7K	1	
R627		ERD25TJ152	1.5K	1	
R629		ERD25TJ272	2.7K	1	
R630,631		ERD25TJ273	27K	2	
R632		ERD25TJ272	2.7K	1	
R634		ERD25TJ273	27K	1	
R635		ERD12TJ331	1/2W 330	1	
R636		ERD25TJ561	560	1	
R637—639		ERD25TJ103	10K	3	
R640		ERD25TJ152	1.5K	1	
R642,643		ERD25TJ273	27K	2	
R644		ERD25TJ103	10K	1	
R645		ERD25TJ272	2.7K	1	
R646		ERD25TJ273	27K	1	
R647		ERD25TJ103	10K	1	
R648		ERD25TJ562	5.6K	1	
R649		ERD25TJ152	1.5K	1	
R650		ERD25TJ273	27K	1	
R651		ERD25TJ103	10K	1	
R652		ERD25TJ272	2.7K	1	
R653		ERD25TJ103	10K	1	
R654,655		ERD25TJ563	56K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R656		ERD25TJ152	1.5K	1	
R658		ERD25TJ272	2.7K	1	
R659,660		ERD25TJ273	27K	2	
R661		ERD25TJ222	2.2K	1	
R663		ERD25TJ272	2.7K	1	
R664,665		ERD25TJ273	27K	2	
R666,667		ERD25TJ272	2.7K	2	
R668		ERD25TJ103	10K	1	
R669		ERD25TJ152	1.5K	1	
R670		ERD25TJ103	10K	1	
R672—674		ERD25TJ273	27K	3	
R675		ERD25TJ103	10K	1	
R676,677		ERD25TJ563	56K	2	
R678		ERD25TJ102	1K	1	
R679		ERD25TJ563	56K	1	
R680		ERD25TJ273	27K	1	
R681		ERD25TJ103	10K	1	
R682		ERD25TJ273	27K	1	
R683		ERD25TJ563	56K	1	
R684		ERD25TJ273	27K	1	
R685		ERD25TJ102	1K	1	
R686		ERD25TJ272	2.7K	1	
R687		ERD25TJ273	27K	1	
R688		ERD25TJ103	10K	1	
R689		ERD25TJ562	5.6K	1	
R690,691		ERD25TJ563	56K	2	
R692		ERD25TJ273	27K	1	
R693		ERD25TJ563	56K	1	
R694		ERD25TJ103	10K	1	
R695		ERD25TJ272	2.7K	1	
R696		ERD25TJ393	39K	1	
R697		ERD25TJ103	10K	1	
R698		ERD25TJ272	2.7K	1	
R699,6100		ERD25TJ103	10K	2	
R6101		ERD25TJ152	1.5K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6102		ERD25TJ273	27K	1	
R6103		ERD25TJ563	56K	1	
R6104		ERD25TJ224	220K	1	
R6105		ERD25TJ562	5.6K	1	
R6106,6107		ERD25TJ103	10K	2	
R6108		ERD25TJ152	1.5K	1	
R6109		ERD25TJ273	27K	1	
R6110		ERD25TJ103	10K	1	
R6111		ERD25TJ221	220	1	
R6112		ERD25TJ564	560K	1	
R6113		ERD25TJ273	27K	1	
R6114		ERD25TJ103	10K	1	
R6117		ERD25TJ562	5.6K	1	
R6118		ERD25TJ103	10K	1	
R6119		ERD25TJ272	2.7K	1	
R6120		ERD25TJ563	56K	1	
R6121		ERD25TJ273	27K	1	
R6122		ERD25TJ562	5.6K	1	
R6123		ERD25TJ221	220	1	
R6124,6125		ERD25TJ103	10K	2	
R6126		ERD25TJ563	56K	1	
R6127		ERD25TJ272	2.7K	1	
R6128		ERD25TJ563	56K	1	
R6129		ERD25TJ272	2.7K	1	
R6130,6131		ERD25TJ273	27K	2	
R6132		ERD25TJ563	56K	1	
R6133		ERD25TJ273	27K	1	
R6134		ERD25TJ103	10K	1	
R6135		ERD25TJ152	1.5K	1	
R6136		ERD25TJ273	27K	1	
R6137		ERD25TJ272	2.7K	1	
R6138		ERD25TJ273	27K	1	
R6139		ERD25TJ272	2.7K	1	
R6140		ERD25TJ273	27K	1	
R6141		ERD25TJ563	56K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6142		ERD25TJ273	27K	1	
R6143		ERD25TJ562	5.6K	1	
R6144		ERD25TJ273	27K	1	
R6145		ERD25TJ562	5.6K	1	
R6146		ERD25TJ224	220K	1	
R6147		ERD25TJ563	56K	1	
R6148		ERD25TJ273	27K	1	
R6149		ERD25TJ562	5.6K	1	
R6150		ERD25TJ224	220K	1	
R6158		ERD25TJ152	1.5K	1	
R6159		ERD25TJ103	10K	1	
R6160		ERD25TJ562	5.6K	1	
R6161		ERD25TJ103	10K	1	
R6162		ERD25TJ152	1.5K	1	
R6163		ERD25TJ562	5.6K	1	
R6164		ERD25TJ152	1.5K	1	
R6168		ERD25TJ562	5.6K	1	
R6169		ERD25TJ272	2.7K	1	
R6170		ERD25TJ220	22	1	
R6171		ERD25TJ474	470K	1	
R6172		ERD25TJ563	56K	1	
R6173		ERD25TJ273	27K	1	
R6175		ERD25TJ563	56K	1	
R6176		ERD25TJ104	100K	1	
R6177,6178		ERD25TJ562	5.6K	2	
R6179		ERD25TJ103	10K	1	
R6180		ERD25TJ152	1.5K	1	
R6181,6182		ERD25TJ273	27K	2	
R6183		ERD25TJ103	10K	1	
R6184		ERD25TJ562	5.6K	1	
R6186		ERD25TJ103	10K	1	
R6187		ERD25TJ273	27K	1	
R6188		ERD25TJ101	100	1	
R6189		ERQ12HJ100	Metal 1/2W 10	1	
R6190		ERD14VJ272	2.7K	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6192		ERD25TJ152	1.5K	1	
R6193		ERQ12HJ3R9	Metal 1/2W 3.9	1	
			Packaged Circuits		
Z601—605		EHM112A10	Memory Circuit	5	
Z606		EHM211D39	Schmidt Circuit	1	
Z607		EHM112A10	Memory Circuit	1	
			Capacitors		
C601		ECEA50MR1	Electrolytic 50V 0.1	1	
C607		ECEA6V47L	Electrolytic 6V 47	1	
C603		ECEA16Z47	Electrolytic 16V 47	1	
C605		ECEA16V10L	Electrolytic 16V 10	1	
C606		ECEA50V1L	Electrolytic 50V 1	1	
C607		ECEA50MR1	Electrolytic 50V 0.1	1	
C608,609		ECEA16V10L	Electrolytic 16V 10	2	
C610		ECEA50V1L	Electrolytic 50V 1	1	
C611		ECEA50MR1	Electrolytic 50V 0.1	1	
C612		ECEA16V10L	Electrolytic 16V 10	1	
C613		ECEA16Z47	Electrolytic 16V 47	1	
C614		ECEA16V10L	Electrolytic 16V 10	1	
C615		ECEA16V47L	Electrolytic 16V 47	1	
C616,617		ECEA16V10L	Electrolytic 16V 10	2	
C618		ECEA50MR1	Electrolytic 50V 0.1	1	
C619,620		ECEA16V10L	Electrolytic 16V 10	2	
C621		ECEA16V47L	Electrolytic 16V 47	1	
C622		ECKW1H103PF	Ceramic 10'V 0.01	1	
C623,624		ECEA16V10L	Electrolytic 16V 10	2	
C625		ECEA16Z47	Electrolytic 16V 47	1	
C626		ECEA50MR1	Electrolytic 50V 0.1	1	
C627		ECKW1H103PF	Ceramic 10'V 0.01	1	
C628		ECEA16N3R3	Electrolytic 16V 3.3	1	
C629,630		ECEA16V10L	Electrolytic 16V 10	2	
C631		ECEA16V47L	Electrolytic 16V 47	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Connectors		
P61—68		VJP0091	10 Pin	8	
P69		VJP0090	5 Pin	1	
P612		VJP0091	10 Pin	1	
			Miscellaneous		
		TEL312	GT Pin	6	
		VHN0011	Holder, Circuit Board	5	
		VMA2758	Angle (A)	1	
		VMA2764	Angle	1	
		VMA2771	Angle	2	
		VQL0604	Fuse Caution Label	1	
		XTV3+6FFXS	Screw	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
SUB-TRANSPORT CONTROL CIRCUIT BOARD ASSY					
Transistors					
TR6701		2SC1847	Si NPN Medium Power Output	1	
TR6702,6703		2SC1684	Si NPN General Use for Small Signal	2	
TR6704		2SD389	Si NPN Medium Power Output	1	
TR6705—6707		2SC1684	Si NPN General Use for Small Signal	3	
TR6708		2SD389	Si NPN Medium Power Output	1	
TR6709,6710		2SC1684	Si NPN General Use for Small Signal	2	
TR6711		2SC1847	Si NPN Medium Power Output	1	
TR6712—6716		2SC1684	Si NPN General Use for Small Signal	5	
TR6717		2SD389	Si NPN Medium Power Output	1	
TR6718		2SC1684	Si NPN General Use for Small Signal	1	
TR6719		2SA564	Si PNP General Use for Small Signal	1	
TR6720,6721		2SC1684	Si NPN General Use for Small Signal	2	
Diodes					
D6701—6716		MA150	Si High Speed Switching	16	
D6717		10E1	Si	1	
Resistors					
R6701		ERD12TJ331	1/2W 330	1	
R6702		ERD25TJ561	560	1	
R6703—6705		ERD25TJ562	5.6K	3	
R6706		ERD25TJ273	27K	1	
R6707		ERD25TJ103	10K	1	
R6708		ERD12TJ331	1/2W 330	1	
R6709		ERD25TJ103	10K	1	
R6710		ERD25TJ273	27K	1	
R6711		ERD25TJ103	10K	1	
R6712,6713		ERD25TJ563	56K	2	
R6714		ERX2ANJ2R2	Metal 2W 2.2	1	
R6715		ERD12TJ271	1/2W 270	1	
R6716		ERD25TJ270	27	1	
R6717		ERD25TJ562	5.6K	1	
R6718,6719		ERD25TJ273	27K	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6720		ERD25TJ563	56K	1	
R6721		ERD12TJ331	1/2W 330	1	
R6722		ERD25TJ561	560	1	
R6723,6724		ERD25TJ562	5.6K	2	
R6725		ERD25TJ272	2.7K	1	
R6726—6728		ERD25TJ273	27K	3	
R6729		ERD25TJ103	10K	1	
R6730		ERD25TJ563	56K	1	
R6731		ERD25TJ273	27K	1	
R6732		ERD25TJ563	56K	1	
R6733		ERD25TJ273	27K	1	
R6734		ERX2ANJ2R2	Metal 2W 2.2	1	
R6735		ERD12TJ271	1/2W 270	1	
R6736		ERD25TJ270	27	1	
R6737—6739		ERD25TJ562	5.6K	3	
R6740		ERD25TJ1' 3	10K	1	
R6741		ERD25TJ273	27K	1	
R6742		ERD25TJ272	2.7K	1	
R6743		ERD25TJ562	5.6K	1	
R6744,6745		ERD25TJ103	10K	2	
R6746		ERD25TJ563	56K	1	
Capacitors					
C6701		ECEA50V1L	Electrolytic 50V 1	1	
C6702		ECEA16V10L	Electrolytic 16V 10	1	
C6703		ECEA16Z10	Electrolytic 16V 10	1	
C6704		ECEA50V1L	Electrolytic 50V 1	1	
Connectors					
P644		VJP0091	10 Pin	1	
P645		VJP0089	3 Pin	1	
P646		VJP0091	10 Pin	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Miscellaneous		
		TEL312	GT Pin	4	
		VSC5021	Heat Sink	1	
		XNG3EFXKS	Nut	2	
		XYN3+8FXS	Screw	2	
		XYN3+C6FXS	Screw	2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			SERVO CONTROL CIRCUIT BOARD ASSY		
			ICs		
IC201		AN301	VTR Servo Control Circuit	1	
IC202		M51401	VTR Servo Control Circuit	1	
			Transistors		
TR201		2SC1684	Si NPN General Use for Small Signal	1	
TR202		2SA564	Si PNP General Use for Small Signal	1	
TR203		2SC1685	Si NPN General Use for Small Signal	1	
TR204		2SC1847	Si NPN Medium Power Output	1	
TR205—209		2SC1684	Si NPN General Use for Small Signal	5	
			Diodes		
D201—206		MA150	Si High Speed Switching	6	
D207		VD1222	Si	1	
D208—220		MA150	Si High Speed Switching	13	
			Resistors		
R201		ERD25TJ222	2.2K	1	
R202		ERD25TJ332	3.3K	1	
R203		ERD25TJ684	680K	1	
R204—206		ERD25TJ103	10K	3	
R207,208		ERD25TJ104	100K	2	
R209		ERD25TJ332	3.3K	1	
R210,211		ERD25TJ103	10K	2	
R212,213		ERQ12HJ3R9	Metal 1/2W 3.9	2	
R214		ERD25TJ222	2.2K	1	
R215		EVLS6AA00B54	Variable 50K	1	
R216		ERQ12HJ100	Metal 1/2W 10	1	
R217		EVLS6AA00B54	Variable 50K	1	
R218		ERD25TJ393	39K	1	
R219		EVLS6AA00B54	Variable 50K	1	
R220		ERD25TJ393	39K	1	
R221		ERD25TJ153	15K	1	
R222		ERD25TJ393	39K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R223		ERD25TJ562	5.6K	1	
R224		ERD25TJ472	4.7K	1	
R225		EVLS6AA00B53	Variable 5K	1	
R226		ERD25TJ821	820	1	
R227		ERD25TJ124	120K	1	
R228		ERD25TJ273	27K	1	
R229		ERD25TJ123	12K	1	
R230		ERD25TJ473	47K	1	
R231		ERD25TJ562	5.6K	1	
R232		ERD25TJ392	3.9K	1	
R233		ERD25TJ152	1.5K	1	
R234		EVLS6AA00B13	Variable 1K	1	
R235		ERD25TJ471	470	1	
R236		ERD25TJ183	18K	1	
R237		ERD25TJ222	2.2K	1	
R238		ERD25TJ333	3.3K	1	
R239		ERD12FJ680	1/2W 68	1	
R240		ERD25TJ103	10K	1	
R241		ERD25TJ102	1K	1	
R242		ERD25TJ331	330	1	
R243		ERD25TJ103	10K	1	
R244		ERD25TJ223	22K	1	
R245		ERD25TJ332	3.3K	1	
R246		EVLS6AA00B25	Variable 200K	1	
R247		ERD25TJ473	47K	1	
R248,249		ERD25TJ223	22K	2	
R250		ERD25TJ332	3.3K	1	
R251		ERD25TJ333	33K	1	
R252		ERD25TJ122	1.2K	1	
R253		ERD25TJ223	22K	1	
R254		ERD25TJ103	10K	1	
R255		ERD25TJ102	1K	1	
R256		ERD14VJ103	10K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Capacitors		
C201		ECEA16V47L	Electrolytic 16V 47	1	
C202		ECEA6V47L	Electrolytic 6V 47	1	
C203		ECQM1H104KZW	Myler 100V 0.1	1	
C204		ECEA16N10	Electrolytic 16V 10	1	
C205		ECEA50MR15	Electrolytic 50V 0.15	1	
C206		ECQM1H392KZW	Myler 100V 0.0039	1	
C207		ECEA16V10L	Electrolytic 16V 10	1	
C208		ECQM1H394JZW	Myler 100V 0.39	1	
C209		ECQM1H392KZW	Myler 100V 0.0039	1	
C210		ECQM1H823KZW	Myler 100V 0.082	1	
C211−213		ECQM1H103KZW	Myler 100V 0.01	3	
C214		ECEA50V1L	Electrolytic 50V 1	1	
C215		ECEA16V47L	Electrolytic 16V 47	1	
C216		ECEA16V220LU	Electrolytic 16V 220	1	
C217		ECEA25V4R7L	Electrolytic 25V 4.7	1	
C218,219		ECQM1H223KZW	Myler 100V 0.022	2	
C220,221		ECEA50V1L	Electrolytic 50V 1	1	
C222		ECKW1H102KB	Ceramic 10'V 0.001	1	
C223		ECQM1H393KZW	Myler 100V 0.039	1	
C224		ECQM1H224KZW	Myler 100V 0.22	1	
C225		ECQM1H183KZW	Myler 100V 0.018	1	
C226		ECQM1H823JZW	Myler 100V 0.082	1	
C227		ECQM1H393KZW	Myler 100V 0.039	1	
C228		ECQM1H563KZW	Myler 100V 0.056	1	
C229		ECEA16N4R7	Electrolytic 16V 4.7	1	
C230		ECEA16V47L	Electrolytic 16V 47	1	
C231,232		ECKW1H103PF	Ceramic 10'V 0.01	2	
C233		ECQM1H272KZW	Myler 100V 0.0027	1	
C234		ECKW1H103PF	Ceramic 10'V 0.01	1	
C235		ECQM1H332KZW	Myler 100V 0.0033	1	
C238		ECEA16V10L	Electrolytic 16V 10	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
Coils					
L201		VLQ24F102K25	Choke 1 mH	1	
L202		VLQ80F102K	Choke 1 mH	1	
Connectors					
P21—23		VJP0089	3 Pin	3	
P24		VJP0091	10 Pin	1	
Miscellaneous					
		TEL312	GT Pin	6	
		VJH24	Check Terminal	11	

VIDEO RECORDING CIRCUIT BOARD ASSY

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
ICs					
IC301		AN302	VTR Video AGC Circuit	1	
IC302		AN305	VTR Colour AGC Circuit	1	
Transistors					
TR301		2SC828	Si NPN Small Signal Amp.	1	
TR302		2SC1047	Si NPN RF Amp.	1	
TR303		2SC828	Si NPN Small Signal Amp.	1	
TR304		2SC1047	Si NPN RF Amp.	1	
TR305—307		2SC828	Si NPN Small Signal Amp.	3	
TR308,309		2SA564	Si PNP General Use for Small Signal	2	
TR310—313		2SC828	Si NPN Small Signal Amp.	4	
TR314		2SA564	Si PNP General Use for Small Signal	1	
TR315		2SC828	Si NPN Small Signal Amp.	1	
TR316,317		2SA564	Si PNP General Use for Small Signal	2	
TR318		2SC828	Si NPN Small Signal Amp.	1	
TR319,320		2SC1216	Si NPN	2	
TR321		2SC828	Si NPN Small Signal Amp.	1	
TR322		2SA564	Si PNP General Use for Small Signal	1	
TR323—327, 329—333		2SC828	Si NPN Small Signal Amp.	10	
TR334		2SC1384	Si NPN AF Power Amp. & Driver	1	
TR335		2SC1318	Si NPN AF Power Amp. & Driver	1	
TR336		2SC828	Si NPN Small Signal Amp.	1	
TR337		2SC1318	Si NPN AF Power Amp. & Driver	1	
TR338		2SA684	Si PNP AF Power Amp. & Driver	1	
TR339,340		2SC1384	Si NPN AF Power Amp. & Driver	2	
TR341		2SA684	Si PNP AF Power Amp. & Driver	1	
TR342—347		2SC828	Si NPN Small Signal Amp.	6	
TR348		2SC1847	Si NPN Medium Power Output	1	
TR349—352		2SC828	Si NPN Small Signal Amp.	4	
Diodes					
D301		RD56EC	Zener	1	
D302—308, 310—314		MA150	Si High Speed Switching	12	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Resistors		
R301		ERD25TJ750	75	1	
R302,303		ERD25TJ223	22K	2	
R304		ERD25TJ222	2.2K	1	
R305		ERD25TJ103	10K	1	
R306		ERD25TJ563	56K	1	
R307		ERD25TJ750	75	1	
R308,309		ERD25TJ223	22K	2	
R310		ERD25TJ222	2.2K	1	
R311		ERD25TJ103	10K	1	
R312		ERD25TJ563	56K	1	
R313		ERD25TJ123	12K	1	
R314		ERD25TJ103	10K	1	
R315		ERD25TJ681	680	1	
R316		ERD25TJ101	100	1	
R317		ERQ12HJ3R9	Cement 1/2W 3.9	1	
R318		ERD25TJ102	1K	1	
R319		ERD25TJ122	1.2K	1	
R320		ERD25TJ101	100	1	
R321		ERD25TJ183	18K	1	
R322		ERD25TJ682	6.8K	1	
R323		ERQ12HJ3R9	Cement 1/2W 3.9	1	
R324		ERD25TJ102	1K	1	
R325		ERD25TJ471	470	1	
R326		ERD25TJ122	1.2K	1	
R327		ERD25TJ223	22K	1	
R328		ERD25TJ123	12K	1	
R329		ERD25TJ222	2.2K	1	
R330		ERD25TJ333	33K	1	
R331		ERD25TJ103	10K	1	
R332		ERD25TJ333	33K	1	
R333		ERD25TJ103	10K	1	
R334		ERD25TJ471	470	1	
R335,336		ERD25TJ182	1.8K	2	
R337		ERD25TJ273	27K	1	
R338		ERD25TJ153	15K	1	
R339		ERD25TJ681	680	1	
R340,341		ERD25TJ182	1.8K	2	
R342		ERD25TJ223	22K	1	
R343		ERD25TJ123	12K	1	
R344		ERD25TJ222	2.2K	1	
R345		ERD25TJ273	27K	1	
R346		ERD25TJ153	15K	1	
R347		ERD25TJ471	470	1	
R348		ERD25TJ391	390	1	
R349		ERD25TJ102	1K	1	
R350		ERD25TJ332	3.3K	1	
R351		ERD25TJ152	1.5K	1	
R352		ERD25TJ331	330	1	
R353		ERD14FJ330A	33	1	
R354		EVLS6AA00B53	Variable 5K	1	
R355		ERD25TJ332	3.3K	1	
R356		ERD25TJ103	10K	1	
R357		ERD25TJ473	47K	1	
R358		ERD25TJ273	27K	1	
R359		EVLS6AA00B23	Variable 2K	1	
R360		ERD25TJ334	330K	1	
R361		ERD25TJ105	1M	1	
R362		ERD25TJ121	120	1	
R363		ERD25TJ821	820	1	
R364		ERD25TJ102	1K	1	
R365		ERD25TJ333	33K	1	
R366		ERD25TJ272	2.7K	1	
R367		ERD25TJ682	6.8K	1	
R368		EVLS6AA00B23	Variable 2K	1	
R369		ERD25TJ562	5.6K	1	
R370		ERD25TJ681	680	1	
R371		EVLS6AA00B52	Variable 500	1	
R372		ERD25TJ122	1.2K	1	
R373		ERD25TJ392	3.9K	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R374		ERD25TJ122	1.2K	1	
R375		ERD25TJ331	330	1	
R376		EVLS6AA00B32	Variable 300	1	
R377,378		ERO25CKF2201	Metal 2.2K	2	
R380		ERD25TJ223	22K	1	
R381		ERD25TJ103	10K	1	
R382,383		ERD25TJ100	10	2	
R384		ERD25TJ151	150	1	
R385		ERD25TJ331	330	1	
R386,387		ERD25TJ101	100	2	
R388		ERD25TJ331	330	1	
R389		ERD14FJ330	33	1	
R390		ERD25TJ223	22K	1	
R391		ERD25TJ333	33K	1	
R392		ERD25TJ332	3.3K	1	
R393		ERD25TJ394	390K	1	
R394		ERD25TJ181	180	1	
R395		ERD25TJ473	47K	1	
R396		ERD25TJ564	560K	1	
R397		ERD25TJ152	1.5K	1	
R398		ERD25TJ153	15K	1	
R399		ERD25TJ473	47K	1	
R3100		ERD25TJ152	1.5K	1	
R3101,3102		ERD25TJ102	1K	2	
R3103		ERD25TJ152	1.5K	1	
R3104		ERD25TJ332	3.3K	1	
R3105		EVLS6AA00B53	Variable 5K	1	
R3106		ERD25TJ472	4.7K	1	
R3107		ERD25TJ223	22K	1	
R3108		ERD25TJ332	3.3K	1	
R3109		ERD25TJ222	2.2K	1	
R3110		ERD25TJ331	330	1	
R3111,3112		ERD25TJ222	2.2K	2	
R3113		ERD25TJ102	1K	1	
R3114		ERD25TJ562	5.6K	1	
R3115		ERD25TJ103	10K	1	
R3116		ERD25TJ102	1K	1	
R3117,3118		ERD25TJ270	27	2	
R3119		ERD25TJ102	1K	1	
R3120		ERD25TJ122	1.2K	1	
R3121		ERD25TJ152	1.5K	1	
R3122		ERD25TJ123	12K	1	
R3123		ERD25TJ223	22K	1	
R3124		ERD25TJ331	330	1	
R3125		ERD25TJ471	470	1	
R3126		ERD25TJ223	22K	1	
R3127		ERD25TJ183	18K	1	
R3128—3130		ERD25TJ102	1K	3	
R3131		ERD25TJ222	2.2K	1	
R3132		ERD25TJ153	15K	1	
R3133		ERD25TJ273	27K	1	
R3134		ERD25TJ334	330K	1	
R3135,3136		ERD25TJ562	5.6K	2	
R3137		ERD25TJ102	1K	1	
R3138		ERD25TJ122	1.2K	1	
R3139		ERD25TJ102	1K	1	
R3140,3141		ERD25TJ103	10K	2	
R3142		ERD25TJ333	33K	1	
R3143		ERD25TJ103	10K	1	
R3144		ERD25TJ102	1K	1	
R3145		ERD25TJ681	680	1	
R3146		ERD25TJ271	270	1	
R3147		ERQ12HJ560	Cement 1/2W 56	1	
R3148		ERD25TJ472	4.7K	1	
R3149		ERD25TJ152	1.5K	1	
R3150		ERD25TJ331	330	1	
R3151		ERD25TJ151	150	1	
R3152		ERD25TJ391	390	1	
R3153		ERD12TJ121	1/2W 120	1	
R3154		ERD25TJ221	220	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R3155		EVLS6AA00B52	Variable 500	1	
R3156		ERD25TJ183	18K	1	
R3157		ERD25TJ392	3.9K	1	
R3158		ERD25TJ681	680	1	
R3159		ERD25TJ221	220	1	
R3161		ERD25TJ471	470	1	
R3162		ERD25TJ103	10K	1	
R3163		ERD25TJ223	22K	1	
R3164		ERD25TJ103	10K	1	
R3165		ERD25TJ183	18K	1	
R3166		ERD25TJ123	12K	1	
R3167		ERD25TJ561	560	1	
R3168,3169		ERD25TJ102	1K	2	
R3170,3171		ERD25TJ562	5.6K	2	
R3172		ERD25TJ102	1K	1	
R3173,3174		ERD25TJ220	22	2	
R3175,3176		ERD25TJ4R7	4.7	2	
R3177		ERD25TJ392	3.9K	1	
R3178		ERD25TJ330	33	1	
R3179		ERQ12HJ3R9	Cement 1/2W 3.9	1	
R3180,3181		ERD25TJ183	18K	2	
R3182		ERD25TJ182	1.8K	1	
R3183		ERD25TJ822	8.2K	1	
R3184		ERD25TJ153	15K	1	
R3185		ERD25TJ103	10K	1	
R3186		ERD25TJ223	22K	1	
R3187		ERD25TJ103	10K	1	
R3188		ERD25TJ822	8.2K	1	
R3189,3190		ERD25TJ333	33K	2	
R3191		ERD25TJ122	1.2K	1	
R3192		EVLS6AA00B23	Variable 2K	1	
R3193		ERD25TJ222	2.2K	1	
R3194		ERD25TJ153	15K	1	
R3195		ERD25TJ223	22K	1	
R3196		ERD25TJ122	1.2K	1	
R3197		ERD25TJ103	10K	1	
R3198		ERD25TJ473	47K	1	
R3199—3201		ERD25TJ103	10K	3	
R3202,3203		ERD25TJ223	22K	2	
R3204		ERD25TJ333	33K	1	
R3205		ERQ12HJ560	Cement 1/2W 56	1	
R3206		ERD25TJ562	5.6K	1	
R3207		ERD25TJ332	3.3K	1	
R3208		ERD25TJ221	220	1	
R3209		ERD25TJ220	22	1	
R3210		ERD25TJ100	10	1	
R3211		ERD25TJ182	1.8K	1	
R3212		ERD25TJ562	5.6K	1	
R3213		ERD25TJ221	220	1	
R3214		ERD25TJ103	10K	1	
R3215		ERD25TJ682	6.8K	1	
R3216		ERD25TJ562	5.6K	1	
R3217		ERD25TJ103	10K	1	
R3218		ERD25TJ822	8.2K	1	
R3219		ERD25TJ472	4.7K	1	
R3220		ERD25TJ101	100	1	
R3221		ERD25TJ561	560	1	
R3222		ERD25TJ332	3.3K	1	
R3223		ERD12TTJ560	1/2W 56	1	
R3224		ERD25TJ272	2.7K	1	
R3225		ERD25TJ180	18	1	
R3227,3228		ERD25TJ152	1.5K	2	
			Capacitors		
C301,302		ECEA6V47L	Electrolytic 6V 47	2	
C303		ECKW1H102KB	Ceramic 10'V 0.001	1	
C304,305		ECEA16V100L	Electrolytic 16V 100	2	
C306		ECEA6V100L	Electrolytic 6V 100	1	
C304		ECCW1H180KC	Ceramic 10'V 18P	1	
C308		ECKW1H181KB	Ceramic 10'V 18P	1	

Ref. No.		Part No.	Part Name & Description			Pcs / Set	Remarks
C309		ECEA16Z47	Electrolytic	16V	47	1	
C310		ECEA6V100L	Electrolytic	6V	100	1	
C311		ECKW1H103PF	Ceramic	10'V	0.01	1	
C312		ECEA16V220LU	Electrolytic	16V	220	1	
C313		ECCW1H390KC	Ceramic	10'V	39P	1	
C314		ECCW1H150KC	Ceramic	10'V	15P	1	
C315		ECEA6V100L	Electrolytic	6V	100	1	
C316		ECCW1H390KC	Ceramic	10'V	39P	1	
C317		ECCW1H220KC	Ceramic	10'V	22P	1	
C318		ECEA6V220L	Electrolytic	6V	220	1	
C319		ECEA16V220LU	Electrolytic	16V	220	1	
C320		ECEA6V220L	Electrolytic	6V	220	1	
C321		ECEA16V47L	Electrolytic	16V	47	1	
C322		ECCW1H560KC	Ceramic	10'V	56P	1	
C323		ECEA16V220LU	Electrolytic	16V	220	1	
C324		ECEA16V10L	Electrolytic	16V	10	1	
C325		ECEA16V100L	Electrolytic	16V	100	1	
C326		ECKW1H103PF	Ceramic	10'V	0.01	1	
C327		ECEA16V220LU	Electrolytic	16V	220	1	
C328		ECKW1H103PF	Ceramic	10'V	0.01	1	
C329		ECEA16V100L	Electrolytic	16V	100	1	
C330		ECEA16V10L	Electrolytic	16V	10	1	
C331		ECEA16N47	Electrolytic	16V	47	1	
C332		ECQM1H122JZW	Myler	100V	0.0012	1	
C333		ECEA25N3R3	Electrolytic	25V	3.3	1	
C334		ECEA50MR15	Electrolytic	50V	0.15	1	
C335		ECEA50V1L	Electrolytic	50V	1	1	
C336		ECEA16V47L	Electrolytic	16V	47	1	
C337		ECKW1H102KB	Ceramic	10'V	0.001	1	
C338,339		ECCD1H470JC	Ceramic	10'V	47P	2	
C340		ECKW1H103PF	Ceramic	10'V	0.01	1	
C341		ECEA16V10L	Electrolytic	16V	10	1	
C342,343		ECKW1H181KB	Ceramic	10'V	180P	2	
C344,345		ECEA16V100L	Electrolytic	16V	100	2	
C346		ECSF25E1	Tantal	25V	1P	1	
C347		ECKW1H471KB	Ceramic	10'V	470P	1	
C348		ECEA16V10L	Electrolytic	16V	10	1	
C349		ECKW1H391KB	Ceramic	10'V	390P	1	
C350		ECEA50V1L	Electrolytic	50V	1	1	
C351		ECEA6V100L	Electrolytic	6V	100	1	
C352		ECCW1H330KC	Ceramic	10'V	33P	1	
C353		ECEA50V1L	Electrolytic	50V	1	1	
C354		ECEA6V100L	Electrolytic	6V	100	1	
C355		ECEA50MR15	Electrolytic	50V	0.15	1	
C356,357		ECKW1H103PF	Ceramic	10'V	0.01	2	
C358		ECEA16V10L	Electrolytic	16V	10	1	
C359		ECKW1H103PF	Ceramic	10'V	0.01	1	
C360		ECEA50V1L	Electrolytic	50V	1	1	
C361		ECCW1H150KC	Ceramic	10'V	15P	1	
C362		ECCW1H560KC	Ceramic	10'V	56P	1	
C363		ECKW1H103PF	Ceramic	10'V	0.e1	1	
C364		ECCW1H680KC	Ceramic	10'V	68P	1	
C365,366		ECKW1H103PF	Ceramic	10'V	0.01	2	
C367		ECEA16V10L	Electrolytic	16V	10	1	
C368		ECQM1H122KZW	Myler	100V	0.0012	1	
C369		ECEA16V10L	Electrolytic	16V	10	1	
C370—374		ECKW1H103PF	Ceramic	10'V	0.01	5	
C375		ECEA16V10L	Electrolytic	16V	10	1	
C376		ECKW1H103PF	Ceramic	10'V	0.01	1	
C377		ECKW1H102KB	Ceramic	10'V	0.001	1	
C378—380		ECKW1H103PF	Ceramic	10'V	0.01	3	
C381		ECCW1H820KC	Ceramic	10'V	82P	1	
C382		ECKW1H103PF	Ceramic	10'V	0.01	1	
C383		ECEA50V1L	Electrolytic	50V	1	1	
C384		ECQM1H473KZW	Myler	100V	0.047	1	
C385,386		ECKW1H103PF	Ceramic	10'V	0.01	2	
C387		ECKW1H102KB	Ceramic	10'V	0.001	1	
C388,389		ECKW1H103PF	Ceramic	10'V	0.01	2	
C390		ECQM1H473KZW	Myler	100V	0.047	1	
C391		ECKW1H103PF	Ceramic	10'V	0.01	1	

Ref. No.		Part No.	Part Name & Description		Pcs / Set	Remarks
C392		ECKW1H331KB	Ceramic	10‘V 330P	1	
C393		ECV1ZW10X44	Trimmer	1W 1−10pF	1	
C394		ECCW1H100FC	Ceramic	10‘V 10P	1	
C395		ECKW1H681KB	Ceramic	10‘V 680P	1	
C396		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C397		ECKW1H181KB	Ceramic	10‘V 180P	1	
C398		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C399		ECKW1H102KB	Ceramic	10‘V 0.001	1	
C3100		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C3101		ECEA16V10L	Electrolytic	16V 10	1	
C3102−3104		ECKW1H103P	Ceramic	10‘V 0.01	3	
C3105		ECEA16V10L	Electrolytic	16V 10	1	
C3106		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C3107		ECEA50N1	Electrolytic	50V 1	1	
C3108,3109		ECKW1H102KB	Ceramic	10‘V 0.002	2	
C3110		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C3111−3113		ECEA50V1L	Electrolytic	50V 1	3	
C3114		ECCW1H330KC	Ceramic	10‘V 33P	1	
C3115		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C3116		ECEA50N1	Electrolytic	50V 1	1	
C3117		ECEA50V1L	Electrolytic	50V 1	1	
C3118		ECKW1H103PF	Ceramic	10‘V 0.01	1	
C3119		ECEA6V100L	Electrolytic	6V 100	1	
			Coils			
L301		VLQ80W221K	Choke	220μH	1	
L302		VLQ80W390K	Choke	39μH	1	
L303		VLQ80W680K	Choke	68μH	1	
L304		VLQ80W330K	Choke	33μH	1	
L305		VLQ80W560K	Choke	56μH	1	
L306,307		VLQ80W221K	Choke	220μH	2	
L308		VLQ80W101K	Choke	100μH	1	
L309		ELQ2P1	Choke		1	
L310		VLQ80W221K	Choke	220μH	1	
L311		VLQ80W1R0K	Choke	1.0μH	1	
L312		VLQ80W390K	Choke	39μH	1	
L313		VLQ80W8R2K	Choke	8.2μH	1	
L314		VLQ80W221K	Choke	220μH	1	
L315		VLQ80W820K	Choke	82μH	1	
L316		VLQ80W220K	Choke	22μH	1	
L317		VLQ80W150K	Choke	15μH	1	
L318		VLF02F822K	Choke	8.2mH	1	
L319−322		VLQ80W221K	Choke	220μH	4	
L324,325		VLQ80W221K	Choke	220μH	2	
L326		VLQ24F102K25	Choke	1mH	1	
L327		VLQ80W100K	Choke	10μH	1	
L328		VLQ80W561K	Choke	560μH	1	
			Transformers			
T301		EIK10H3			1	
T302,303		ELT10S906			2	
			Filters			
FL301		VLF0030	Low-Pass		1	
FL302		VLF0033	High-Pass		1	
FL303		VLF0032	Low-Pass		1	
			Oscillators			
X301		VSX0037	X'tal	4.43MHz	1	
			Delay Lines			
DL301		ELT10Z504			1	
			Connectors			
P31		VJP0090	5 Pin		1	
P32,33		VJP0091	10 Pin		2	
P34,35		VJP0090	5 Pin		2	
P36		VJP0089	3 Pin		1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Miscellaneous		
		TEL312	GT Pin	10	
		VJH24	Check Terminal	16	
		VMA2762	Mounting Angle, Upper	1	
		VMA2760	Mounting Angle, Lower	1	
		VSC0251	Shield Case	1	
		VSC0252	Shield Case	2	
		VSC0255	Shield Case	1	
		VSC0256	Shield Case	2	
		XTV3+6MFX	Screw	4	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			VIDEO PLAYBACK CIRCUIT BOARD ASSY		
			ICs		
IC801		AN316	Drop-Out Compensator	1	
IC802		AN304	Video FM Limiter	1	
IC803		AN303	Noise Suppressor Circuit	1	
IC804		AN305	ACC and Balance Modulator	1	
IC805		SN76670N	Balance Modulator	1	
IC806		AN307	AFC Circuit	1	
IC807		AN301	VSS and M.M.	1	
IC808		AN306	APC Circuit	1	
			Transistors		
TR801—809		2SC828	Si NPN Small Signal Amp.	9	
TR810		2SA564	Si PNP General Use for Small Signal	1	
TR811—819, 822—825,827, 829—833		2SC828	Si NPN Small Signal Amp.	19	
TR834		2SC1383	Si NPN AF Power Amp. & Driver	1	
TR835		2SA564	Si PNP General Use for Small Signal	1	
TR836		2SC828	Si PNP Small Signal Amp.	1	
			Diodes		
D801,802		MA150	Si High Speed Switching	2	
D803,804		1S1007	Si	2	
D805—810,815		MA150	Si High Speed Switching	7	
			Resistors		
R801		ERD25TJ221	220	1	
R802		ERD25TJ271	270	1	
R803		ERD25TJ151	150	1	
R804,805		ERD25TJ102	1K	2	
R806		ERD25TJ821	820	1	
R807		ERD25TJ122	1.2K	1	
R808		ERD25TJ391	390	1	
R809		ERD25TJ822	8.2K	1	
R810		ERD25TJ391	390	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R811		ERD25TJ473	47K	1	
R812		ERD25TJ333	33K	1	
R813		EVLS6AA00B24	Variable 20K	1	
R814		ERD25TJ151	150	1	
R815		ERD25TJ102	1K	1	
R816		ERD25TJ562	5.6K	1	
R817		ERD25TJ222	2.2K	1	
R819		ERD25TJ271	270	1	
R820		ERD25TJ223	22K	1	
R821		ERD25TJ471	470	1	
R823,824		ERD25TJ101	100	2	
R825		EVLS6AA00B12	Variable 100	1	
R826		ERD25TJ181	180	1	
R827		ERD25TJ103	10K	1	
R828		ERD25TJ272	2.7K	1	
R830		ERD25TJ102	1K	1	
R831		ERD25TJ221	220	1	
R832		ERD25TJ122	1.2K	1	
R833		ERD14FJ100	10	1	
R834		ERD25TJ221	220	1	
R835		ERD25TJ471	470	1	
R836		ERD25TJ221	220	1	
R837		ERD25TJ331	330	1	
R838		ERD25TJ102	1K	1	
R839		ERD25TJ223	2.2K	1	
R840		ERD25TJ472	4.7K	1	
R841		ERD25TJ122	1.2K	1	
R842,843		ERD25TJ223	22K	2	
R844—846		ERD25TJ561	560	3	
R847		ERD25TJ331	330	1	
R848		ERD25TJ182	1.8K	1	
R849		ERD25TJ333	33K	1	
R850		ERD25TJ472	4.7K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R851		ERD25TJ223	22K	1	
R852		EVLS6AA00B23	Variable 2K	1	
R853,854		ERD25TJ223	22K	2	
R855		ERD25TJ561	560	1	
R856		ERD25TJ103	10K	1	
R857		ERD25TJ333	33K	1	
R858		ERD25TJ332	3.3K	1	
R859		ERD25TJ103	10K	1	
R860		ERD25TJ102	1K	1	
R861		EVLS6AA00B23	Variable 2K	1	
R862		ERD25TJ333	33K	1	
R863		EVLS6AA00B13	Variable 1K	1	
R864		ERD25TJ182	1.8K	1	
R865		ERD25TJ474	470K	1	
R866		ERD25TJ182	1.8K	1	
R867		ERD25TJ102	1K	1	
R868		ERD25TJ272	2.7K	1	
R869		ERD25TJ102	1K	1	
R870		ERD25TJ332	3.3K	1	
R871		ERD25TJ102	1K	1	
R872		ERD25TJ104	100K	1	
R873		ERD25TJ562	5.6K	1	
R874		ERD25TJ223	22K	1	
R875		ERD25TJ681	680	1	
R876,877		ERQ12HJ3R9	Cement 1/2W 3.9	2	
C878		ERD25TJ470	47	1	
R879		ERD25TJ333	33K	1	
R880		ERD25TJ103	10K	1	
R881		ERD25TJ562	5.6K	1	
R882		ERD25TJ333	33K	1	
R883		ERD25TJ223	22K	1	
R884		ERD25TJ562	5.6K	1	
R885		ERD25TJ183	18K	1	
R886		ERD25TJ103	10K	1	
R887		ERD25TJ333	33K	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R888		ERD25TJ223	22K	1	
R889		ERD25TJ392	3.9K	1	
R890		ERD25TJ332	3.3K	1	
R891		ERD25TJ151	150	1	
R892		ERD25TJ152	1.5K	1	
R893		ERD25TJ102	1K	1	
R894		ERD25TJ474	470K	1	
R895,896		ERD25TJ273	27K	2	
R897		EVLS6AA00B13	Variable 1K	1	
R898		ERD25TJ103	10K	1	
R899		ERD25TJ472	4.7K	1	
R8100		ERD25TJ334	330K	1	
R8101		ERD25TJ223	22K	1	
R8102		EVLS6AA00B13	Variable 1K	1	
R8103		ERD25TJ102	1K	1	
R8104		ERD25TJ182	1.8K	1	
R8105,8106		ERD25TJ472	4.7K	2	
R8107		ERD25TJ271	270	1	
R8108		ERD25TJ471	470	1	
R8109		ERD25TJ750	75	1	
R8110		ERD25TJ681	680	1	
R8111		ERD25TJ331	330	1	
R8113		ERD25TJ222	2.2K	1	
R8114		ERD25TJ331	330	1	
R8115		ERD25TJ222	2.2K	1	
R8116		ERD25TJ333	33K	1	
R8117		ERD25TJ223	22K	1	
R8118		ERD25TJ152	1.5K	1	
R8119,8120		ERD25TJ562	5.6K	2	
R8121		ERD25TJ223	22K	1	
R8122		ERD25TJ102	1K	1	
R8123		ERD25TJ104	100K	1	
R8124		ERD25TJ392	3.9K	1	
R8125,8126		ERO25CKF3000	Metal 300	2	
R8127		ERD25TJ152	1.5K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R8128		ERD25TJ222	2.2K	1	
R8129		EVLS6AA00B53	Variable 5K	1	
R8130		ERD25TJ332	3.3K	1	
R8131		ERD25TJ561	560	1	
R8132		ERD25TJ102	1K	1	
R8133		ERD25TJ222	2.2K	1	
R8134		ERD25TJ104	100K	1	
R8135		ERD25TJ123	12K	1	
R8136		ERD25TJ472	4.7K	1	
R8140		ERD25TJ152	1.5K	1	
R8141		ERD25TJ333	33K	1	
R8142		ERD25TJ223	22K	1	
R8143		ERD25TJ103	10K	1	
R8144,8145		ERD25TJ683	68K	2	
R8146		ERD25TJ103	10K	1	
R8147		ERD25TJ122	1.2K	1	
R8148		ERD25TJ391	390	1	
R8149		ERD25TJ122	1.2K	1	
R8150		EVLS6AA00B53	Variable 5K	1	
R8151—8154		ERD25TJ391	390	4	
R8155		ERD25TJ103	10K	1	
R8156		ERD25TJ472	4.7K	1	
R8157		ERD25TJ122	1.2K	1	
R8158		ERD25TJ470	47	1	
R8159		ERD25TJ561	560	1	
R8160		ERD25TJ333	33K	1	
R8161		ERD25TJ223	22K	1	
R8162		ERD25TJ221	220	1	
R8163		ERD25TJ122	1.2K	1	
R8166		EVLS6AA00B52	Variable 500	1	
R8167		ERD25TJ471	470	1	
R8168		ERD25TJ123	12K	1	
R8169		ERD25TJ392	3.9K	1	
R8170		ERD25TJ122	1.2K	1	
R8171		ERD25TJ681	680	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R8176		ERD25TJ152	1.5K	1	
R8177		ERD25TJ103	10K	1	
R8178		ERD25TJ221	220	1	
R8179		EVLS6AA00B54	Variable 50K	1	
R8180		ERD25TJ152	1.5K	1	
R8181		ERD25TJ102	1K	1	
R8182		ERD25TJ221	220	1	
R8183,8184		ERO25CKF3000	Metal 300	2	
R8185		ERD25TJ472	4.7K	1	
R8186		ERD25TJ273	27K	1	
R8187		ERD25TJ820	82	1	
R8188		ERD25TJ393	39K	1	
R8189		ERD25TJ184	180K	1	
R8190		ERD25TJ820	82	1	
R8191		ERD25TJ393	39K	1	
R8192		ERD25TJ101	100	1	
R8193		ERD25TJ561	560	1	
R8194		ERD25TJ101	100	1	
R8195—8198		ERD25TJ561	560	4	
R8199		ERD25TJ103	10K	1	
R8200		ERD25TJ562	5.6K	1	
R8201		ERD25TJ123	12K	1	
R8203		ERD25TJ104	100K	1	
R8204		ERD25TJ563	56K	1	
R8205		ERD25TJ101	100	1	
R8206		ERD25TJ333	33K	1	
R8207		ERD25TJ103	10K	1	
R8208		ERD25TJ272	2.7K	1	
R8209		ERD25TJ222	2.2K	1	
R8210		ERD25TJ332	3.3K	1	
R8211		ERD25TJ220	22	1	
R8212		ERD12TJ121	1/2W 120	1	
R8213,8214		ERD25TJ562	5.6K	2	
R8215,8216		ERD25TJ750	75	2	
R8217		ERQ12HJ3R9	Cement 1/2W 3.9	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R8218		ERD25TJ472	4.7K	1	
R8219		EVLS6AA00B52	Variable 500	1	
R8220		ERD25TJ102	1K	1	
R8221		ERQ12HJ3R9	Cement 1/2W 3.9	1	
R8224,8225		ERD25TJ821	820	2	
R8226		ERD25TJ102	1K	1	
R8227,8228		ERD25TJ562	5.6K	2	
			Capacitors		
C801		ECKW1H181KB	Ceramic 10⁴V 180P	1	
C802		ECEA50MR1	Electrolytic 50V 0.1	1	
C803,805		ECKW1H103PF	Ceramic 10⁴V 0.01	2	
C806		ECCW1H101KC	Ceramic 10⁴V 100P	1	
C807—810		ECKW1H103PF	Ceramic 10⁴V 0.01	4	
C811		ECEA16V10L	Electrolytic 16V 10	1	
C812		ECKW1H103PF	Ceramic 10⁴V 0.01	1	
C813		ECEA50V1L	Electrolytic 50V 1	1	
C814		ECCW1H820KC	Ceramic 10⁴V 82P	1	
C815		ECKW1H102KB	Ceramic 10⁴V 0.001	1	
C816,817		ECKW1H103PF	Ceramic 10⁴V 0.01	2	
C818		ECKW1H102KB	Ceramic 10⁴V 0.001	1	
C819		ECEA16V10L	Electrolytic 16V 10	1	
C820—823		ECKW1H103PF	Ceramic 10⁴V 0.01	4	
C824		ECEA6V100L	Electrolytic 6V 100	1	
C825		ECEA16V10L	Electrolytic 16V 10	1	
C826,827		ECKW1H103PF	Ceramic 10⁴V 0.01	2	
C828		ECEA6V100L	Electrolytic 6V 100	1	
C829		ECEA16V100L	Electrolytic 16V 100	1	
C830		ECKW1H103PF	Ceramic 10⁴V 0.01	1	
C831		ECQM1H102JZW	Myler 100V 0.001	1	
C832		ECEA16V220LU	Electrolytic 16V 220	1	
C833		ECKW1H103PF	Ceramic 10⁴V 0.01	1	
C834		ECEA16V220LU	Electrolytic 16V 220	1	
C835		ECEA16Z33	Electrolytic 16V 33	1	
C836		ECEA16V220LU	Electrolytic 16V 220	1	

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Ref. No.		Part No.	Part Name & Description			Pcs / Set	Remarks
C837		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C838		ECEA6V470L	Electrolytic	6V	470	1	
C839		ECEA6V47L	Electrolytic	6V	47	1	
C840		ECCW1H180KC	Ceramic	10^4V	18P	1	
C841		ECKW1H331KB	Ceramic	10^4V	330P	1	
C842		ECEA16Z33	Electrolytic	16V	33	1	
C843		ECEA6V220L	Electrolytic	6V	220	1	
C844		ECEA6V470L	Electrolytic	6V	470	1	
C845		ECCW1H470KC	Ceramic	10^4V	47P	1	
C846		ECEA16V47L	Electrolytic	16V	47	1	
C847		ECCW1H560KC	Ceramic	10^4V	56P	1	
C848		ECCW1H220KC	Ceramic	10^4V	22P	1	
C849		ECEA16Z33	Electrolytic	16V	33	1	
C850		ECEA6V100L	Electrolytic	6V	100	1	
C851		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C852		ECEA16V47L	Electrolytic	16V	47	1	
C853		ECEA6V47L	Electrolytic	6V	47	1	
C854		ECEA6V100L	Electrolytic	6V	100	1	
C855,856		ECKW1H103PF	Ceramic	10^4V	0.01	2	
C857		ECEA10V220L	Electrolytic	10V	220	1	
C858		ECEA16N10	Electrolytic	16V	10	1	
C859		ECEA16V220LU	Electrolytic	16V	220	1	
C860		ECKW1H271KB	Ceramic	10^4V	270P	1	
C861		ECKW1H181KB	Ceramic	10^4V	180P	1	
C862		ECEA16V10L	Electrolytic	16V	10	1	
C863		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C864		ECEA6V47L	Electrolytic	6V	47	1	
C865		ECEA16V470LU	Electrolytic	16V	470	1	
C866—868		ECKW1H103PF	Ceramic	10^4V	0.01	3	
C869,870		ECKW1H102KB	Ceramic	10^4V	0.001	2	
C871		ECEA16V10L	Electrolytic	16V	10	1	
C872		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C873		ECCW1H560KC	Ceramic	10^4V	56P	1	
C874		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C875		ECQM1H104KZW	Myler	100V	0.1	1	

Ref. No.		Part No.	Part Name & Description			Pcs / Set	Remarks
C876		ECEA16V10L	Electrolytic	16V	10	1	
C877—879		ECKW1H103PF	Ceramic	10^4V	0.01	3	
C880,881		ECEA16V10L	Electrolytic	16V	10	2	
C882—888		ECKW1H103PF	Ceramic	10^4V	0.01	7	
C889		ECEA16V10L	Electrolytic	16V	10	1	
C890,891		ECKW1H103PF	Ceramic	10^4V	0.01	2	
C892		ECCW1H100FC	Ceramic	10^4V	10P	1	
C894		ECCW1H101KC	Ceramic	10^4V	100P	1	
C895		ECEA16V10L	Electrolytic	16V	10	1	
C896—899		ECKW1H103PF	Ceramic	10^4V	0.01	4	
C8100		ECCW1H101KC	Ceramic	10^4V	100P	1	
C8101		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C8102		ECEA50V1L	Electrolytic	50V	1	1	
C8103		ECEA16V10L	Electrolytic	16V	10	1	
C8104,8105		ECKW1H103PF	Ceramic	10^4V	0.01	2	
C8106		ECKW1H180KC	Ceramic	10^4V	18P	1	
C8107		ECEA50MR1	Electrolytic	50V	0.1	1	
C8108		ECEA25V4R7L	Electrolytic	25V	4.7	1	
C8109		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C8110		ECCW1H121KUN	Ceramic	10^4V	120P	1	
C8111		VCM0001	Film Mica		560P	1	
C8112		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C8113		ECKW1H561KB	Ceramic	10^4V	560P	1	
C8114		ECCW1H680KC	Ceramic	10^4V	68P	1	
C8115,8116		ECKW1H103PF	Ceramic	10^4V	0.01	2	
C8117		ECEA16V10L	Electrolytic	16V	10	1	
C8118		ECKW1H103PF	Ceramic	10^4V	0.01	1	
C8119		ECKW1H102KB	Ceramic	10^4V	0.001	1	
C8120		ECEA6V100L	Electrolytic	6V	100	1	
C8121		ECKW1H471KB	Ceramic	10^4V	470P	1	
C8122		ECKW1H102KB	Ceramic	10^4V	0.001	1	
C8123		ECQM1H332KZW	Myler	100V	0.0033	1	
C8124		ECV1ZW10X44	Trimmer	1W	1—10pF	1	
C8125		ECCW1H150KC	Ceramic	10^4V	15P	1	
C8126		ECKW1H561KB	Ceramic	10^4V	560P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C8127		ECCW1H101KC	Ceramic 10'V 100P	1	
C8129		ECCW1H220KC	Ceramic 10'V 22P	1	
C8130		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8131		ECKW1H181KB	Ceramic 10'V 180P	1	
C8132		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8133		ECQM1H122KZW	Myler 100V 0.0012	1	
C8134		ECEA16V10L	Electrolytic 16V 10	1	
C8135,8137		ECKW1H103PF	Ceramic 10'V 0.01	2	
C8138		ECEA50MR1	Electrolytic 50V 0.1	1	
C8139		ECEA50V1L	Electrolytic 50V 1	1	
C8140		ECKW1H271KB	Ceramic 10'V 270P	1	
C8141		ECKW1H151KB	Ceramic 10'V 150P	1	
C8142		ECEA16V100L	Electrolytic 16V 100	1	
C8143		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8144		ECQM1H102KZW	Myler 100V 0.001	1	
C8145		ECCW1H101KC	Ceramic 10'V 100P	1	
C8146		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8147,8148		ECKW1H102KB	Ceramic 10'V 0.001	2	
C8149		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8151		ECKW1H102KB	Ceramic 10'V 0.001	1	
C8152		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8153		ECEA16V10L	Electrolytic 16V 10	1	
C8154		ECKW1H102KB	Ceramic 10'V 0.001	1	
C8157		ECEA16V220LU	Electrolytic 16V 220	1	
C8158		ECEA16V10L	Electrolytic 16V 10	1	
C8159		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8160		ECQM1H823KZW	Myler 100V 0.082	1	
C8161		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8162,8163		ECKW1H102KB	Ceramic 10'V 0.001	2	
C8164		ECEA25V4R7L	Electrolytic 25V 4.7	1	
C8165		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8166		ECEA25V4R7L	Electrolytic 25V 4.7	1	
C8167		ECEA16V10L	Electrolytic 16V 10	1	
C8168,8169		ECKW1H103PF	Ceramic 10'V 0.01	2	
C8170		ECCW1H120KC	Ceramic 10'V 12P	1	
C8171,8172		ECKW1H103PF	Cepamic 10'V 0.01	2	
C8173,8174		VCM0001	Film Mica 560P	2	
C8175		ECKW1H681KB	Ceramic 10'V 680P	1	
C8176		ECQM1H683KZW	Myler 100V 0.068	1	
C8177		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8178,8179		ECKW1H561KB	Ceramic 10'V 560P	2	
C8180		ECEA16V10L	Electrolytic 16V 10	1	
C8181,8182		ETCW1H820KC	Ceramic 10'V 82P	2	
C8183		ECKW1H102KB	Ceramic 10'V 0.001	1	
C8184		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8185		ECEA16V10L	Electrolytic 16V 10	1	
C8186		ECQM1H123KZW	Myler 100V 0.012	1	
C8187		ECEA50V1L	Electrolytic 50V 1	1	
C8188		ECEA50MR22	Electrolytic 50V 0.22	1	
C8189		ECQM1H183KZW	Myler 100V 0.018	1	
C8190		ECEA50MR33	Electrolytic 50V 0.33	1	
C8191		ECEA6V47L	Electrolytic 6V 470	1	
C8192		ECEA16V220LU	Electrolytic 16V 220	1	
C8193		ECKW1H103PF	Ceramic 10'V 0.01	1	
C8194,8195		ECEA10V10001	Electrolytic 10V 1000	2	
C8196		ECKW1H391KB	Ceramic 10'V 390P	1	
C8197		ECCW1H330KC	Ceramic 10'V 33P	1	
C8198,8199		ECCW1H270KC	Ceramic 10'V 27P	2	
C8200		ECEA6V100L	Electrolytic 6V 100	1	
C8201		ECCW1H270KC	Ceramic 10'V 27P	1	
			Coils		
L801		VLQ80W120K	Choke 12μH	1	
L802,803		VLQ80W221K	Choke 220μH	2	
L804,805		VLQ80W6R8K	Choke 6.8μH	2	
L806,807		VLQ80W221K	Choke 220μH	2	
L808		VLQ80W220K	Choke 22μH	1	
L809		VLQ80W560K	Choke 56μH	1	
L810		VLQ80W680K	Choke 68μH	1	
L811—814		VLQ80W221K	Choke 220μH	4	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
L815		VLQ80W220K	Choke 22μH	1	
L816		VLQ80W221K	Choke 220μH	1	
L817		VLQ80W560K	Choke 56μH	1	
L818,819		VLQ80W221K	Choke 220μH	2	
L820		VLQ80W680K	Choke 68μH	1	
L821		VLQ80W221K	Choke 220μH	1	
L822		VLQ02F682K	Choke 6.8mH	1	
L823		VLQ80W470K	Choke 47μH	1	
L824		VLQ80F821K	Choke 820μH	1	
L825—827		VLQ80W221K	Choke 220μH	3	
L828		VLQ80W6R8K	Choke 6.8μH	1	
L829		VLQ80W221K	Choke 220μH	1	
L830		VLQ80W390K	Choke 39μH	1	
L831		VLQ80F561K	Choke 560μH	1	
L832,833		VLQ80W221K	Choke 220μH	2	
L834		VLQ80W390K	Choke 39μH	1	
L835		VLQ80W330K	Choke 33μH	1	
L836		VLQ80W470K	Choke 47μH	1	
			Transformers		
T801		ELT10S905		1	
T802		EIK10H3		1	
T803		EIS10S38		1	
T804		EIK10H2		1	
			Delay Lines		
DL801		EFDEN645A01	1 H	1	
DL802		ELT10Z504		1	
DL803		EFDEN645A01	1 H	1	
			Filters		
FL801		VLF0036	High-Pass	1	
FL802		VLF0035	Low-Pass	1	
FL803		VLF0034	Low-Pass	1	
FL804		VLF0032	Low-Pass	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
FL805		VLF0018	Band-Pass	1	
FL806		VLF0012	Band-Pass	1	
FL807		VLF0018	Band-Pass	1	
			Oscillator		
X801		VSX0036	X'tal 4,433.619kHz	1	
			Connectors		
P81,82		VJP0090	5 Pin	2	
P83		VJP0091	10 Pin	1	
P84		VJP0089	3 Pin	1	
P85		VJP0091	10 Pin	1	
			Miscellaneous		
		TEL312	GT Pin	4	
		VJH24	Check Terminal	30	
		VJR3	Clamper	3	
		VMA2761	Mounting Angle, Upper	1	
		VMA2897	Mounting Angle, Lower	1	
		VSC0253	Shield Board B	1	
		VSC0254	Shield Board A	1	
		XRH3X4A	Rivet	3	
		XTW3+6MFX	Screw	4	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
AUDIO CIRCUIT					
Transistors					
TR401,402		2SC644-(F)	Si NPN AF Low Noise Amp.	2	
TR403,404		2SC828	Si NPN Small Signal Amp.	2	
TR406		2SC644-(F)	Si NPN AF Low Noise Amp.	1	
TR407,408,410		2SC828	Si NPN Small Signal Amp.	3	
TR411—414		2SC1318-Q	Si NPN AF Power Amp. & Driver	4	
TR415		2SA564A	Si PNP General Use for Small Signal	1	
TR416,417		2SC644-(F)	Si NPN AF Low Noise Amp.	2	
TR418,419		2SC828	Si NPN Small Signal Amp.	2	
TR421		2SC644-(F)	Si NPN AF Low Noise Amp.	1	
TR422,423,425		2SC828	Si NPN Small Signal Amp.	3	
TR426—429		2SC1318-Q	Si NPN AF Power Amp. & Driver	4	
TR430		2SA564A	Si PNP General Use for Small Signal	1	
TR431		2SC1318-Q	Si NPN AF Power Amp. & Driver	1	
TR433,434		2SC1384	Si NPN AF Power Amp. & Driver	2	
Diodes					
D403—405		MA150	Si High Speed Switching	3	
D409		MA150	Si High Speed Switching	1	
D410		MA150	Si High Speed Switching	1	
D412,415—417		MA150	Si High Speed Switching	4	
D421,422		MA150	Si High Speed Switching	2	
D424,427,428		MA150	Si High Speed Switching	3	
Integrated Circuits					
IC401,402		AN262	Recording and Playback Circuit for VTR	2	
Resistors					
R401		ERD25TJ274	270K	1	
R402		ERD25TJ124	120K	1	
R403		ERD25TJ103	10K	1	
R404		ERD25TJ472	4.7K	1	
R405		ERD25TJ331	330	1	
R406		ERD25TJ274	270K	1	
R407		ERD25TJ124	120K	1	
R408		ERD25TJ103	10K	1	
R409		ERD25TJ472	4.7K	1	
R410		ERD25TJ182	1.8K	1	
R411		ERD25TJ222	2.2K	1	
R412—415		ERD25TJ103	10K	4	
R416		ERD25TJ561	560	1	
R417—419		ERD25TJ103	10K	3	
R420,421		ERD25TJ562	5.6K	2	
R424		ERD25TJ103	10K	1	
R425		ERD25TJ472	4.7K	1	
R426		ERD25TJ222	2.2K	1	
R427		ERD25TJ472	4.7K	1	
R428		ERD25TJ274	270K	1	
R429		ERD25TJ124	120K	1	
R430		ERD25TJ102	1K	1	
R431,432		ERD25TJ103	10K	2	
R434—437		ERD25TJ103	10K	4	
R438		ERD25TJ391	390	1	
R439		ERD25TJ683	68K	1	
R440		EVLS6AA00B53	Variable 5K	1	
R441		EVLS6AA00B24	Variable 20K	1	
R442		ERD25TJ824	820K	1	
R443		ERD25TJ105	1M	1	
R444		ERD25TJ102	1K	1	
R445		ERD25TJ152	1.5K	1	
R446		ERD25TJ223	22K	1	
R452—454		ERD25TJ103	10K	3	
R455		ERD25TJ102	1K	1	
R456		ERD25TJ333	33K	1	
R457		ERD25TJ823	82K	1	
R458		ERD14TJ681	680	1	
R459		ERD14TJ391	390	1	
R460		ERD25TJ562	5.6K	1	
R461		ERD25TJ222	2.2K	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R462		ERD25TJ154	150K	1	
R463		ERD25TJ273	27K	1	
R464		ERD25TJ392	3.9K	1	
R465		ERD25TJ560	56	1	
R466		ERD25TJ102	1K	1	
R467		ERD25TJ223	22K	1	
R468		ERD25TJ103	10K	1	
R469		ERD25TJ392	3.9K	1	
R470		ERD25TJ562	5.6K	1	
R471		ERD25TJ682	6.8K	1	
R472		ERD25TJ183	18K	1	
R473		EVLS6AA00B55	Variable 500K	1	
R474		ERD25TJ274	270K	1	
R475		ERD25TJ124	120K	1	
R476		ERD25TJ103	10K	1	
R477		ERD25TJ472	4.7K	1	
R478		ERD25TJ331	330	1	
R479		ERD25TJ274	270K	1	
R480		ERD25TJ124	120K	1	
R481		ERD25TJ103	10K	1	
R482		ERD25TJ472	4.7K	1	
R483		ERD25TJ182	1.8K	1	
R484		ERD25TJ222	2.2K	1	
R485—488		ERD25TJ103	10K	4	
R489		ERD25TJ561	560	1	
R490—492		ERD25TJ103	10K	3	
R493,494		ERD25TJ562	5.6K	2	
R497		ERD25TJ472	4.7K	1	
R498		ERD25TJ103	10K	1	
R499		ERD25TJ472	4.7K	1	
R4100		ERD25TJ222	2.2K	1	
R4101		ERD25TJ274	270K	1	
R4102		ERD25TJ124	120K	1	
R4103		ERD25TJ102	1K	1	
R4104—4106, 4108—4110		ERD25TJ103	10K	6	
R4111		ERD25TJ391	390	1	
R4112		ERD25TJ683	68K	1	
R4113		EVLS6AA00B53	Variable 5K	1	
R4114		EVLS6AA00B24	Variable 20K	1	
R4115		ERD25TJ824	820K	1	
R4116		ERD25TJ105	1M	1	
R4117		ERD25TJ102	1K	1	
R4118		ERD25TJ152	1.5K	1	
R4119		ERD25TJ223	22K	1	
R4125,4126, 4127		ERD25TJ103	10K	3	
R4128		ERD25TJ102	1K	1	
R4129		ERD25TJ333	33K	1	
R4130		ERD25TJ823	82K	1	
R4131		ERD25TJ681	680	1	
R4132		ERD14TJ391	390	1	
R4133		ERD25TJ562	5.6K	1	
R4134		ERD25TJ222	2.2K	1	
R4135		ERD25TJ154	150K	1	
R4136		ERD25TJ273	27K	1	
R4137		ERD25TJ392	3.9K	1	
R4138		ERD25TJ560	56	1	
R4139		ERD25TJ102	1K	1	
R4140		ERD25TJ223	22K	1	
R4141		ERD25TJ103	10K	1	
R4142		ERD25TJ392	3.9K	1	
R4143		ERD25TJ562	5.6K	1	
R4144		ERD25TJ682	6.8K	1	
R4145		ERD25TJ183	18K	1	
R4147,4148		ERQ12HJ3R9	Metal 1/2W 3.9	2	
R4149,4150		ERD25TJ103	10K	2	
R4153		ERD25TJ392	3.9K	1	
R4154		ERD14TJ5R6	5.6	1	
R4155		ERG2ANJ820	Metal Oxide 2W 82	1	
R4156,4157		ERD25TJ103	10K	2	

Ref. No.		Part No.	Part Name & Description			Pcs / Set	Remarks
			Capacitors				
C401		ECEA50V1L	Electrolytic	50V	1	1	
C402		ECEA16V100L	Electrolytic	16V	100	1	
C403		ECCW1H560KC	Ceramic	10^4V	56P	1	
C404		ECEA50V1L	Electrolytic	50V	1	1	
C405		ECEA6V47L	Electrolytic	6V	47	1	
C406		ECEA50V1L	Electrolytic	50V	1	1	
C407		ECCW1H560KC	Ceramic	10^4V	56P	1	
C408		ECEA50MR47	Electrolytic	50V	0.47	1	
C409		ECEA6V47L	Electrolytic	6V	47	1	
C410		ECQM1H272KZW	Myler	100V	0.0027	1	
C411		ECEA50MR47	Electrolytic	50V	0.47	1	
C414		ECEA50MR47	Electrolytic	50V	0.47	1	
C415		ECEA6V47:	Electrolytic	6V	47	1	
C416		ECQM1H472KZW	Myler	100V	0.0047	1	
C417		ECEA50MR47	Electrolytic	50V	0.47	1	
C418		ECEA16V100L	Electrolytic	16V	100	1	
C419		ECEA50V1L	Electrolytic	50V	1	1	
C421		ECEA10V33L	Electrolytic	10V	33	1	
C422,423		ECEA16V10L	Electrolytic	16V	10	2	
C424		ECQM1H683KZW	Myler	100V	0.068	1	
C425		ECEA16V10L	Electrolytic	16V	10	1	
C426		ECEA16V100L	Electrolytic	16V	100	1	
C427,428		ECQM1H103KZW	Myler	100V	0.01	2	
C429		ECEA50V1L	Electrolytic	50V	1	1	
C430		ECQM1H272KZW	Myler	100V	0.0027	1	
C431		ECEA50MR47	Electrolytic	50V	0.47	1	
C432		ECQM1H272KZW	Myler	100V	0.0027	1	
C436		ECEA50V1L	Electrolytic	50V	1	1	
C437		ECEA6V47L	Electrolytic	6V	47	1	
C438,439		ECEA25V4R7L	Electrolytic	25V	4.7	2	
C440		ECKW1H681KB	Ceramic	10^4V	680P	1	
C441,442		ECEA25V10L	Electrolytic	25V	10	2	
C443,444		ECEA50V1L	Electrolytic	50V	1	2	
C445		ECQM1H153KZW	Myler	100V	0.015	1	
C446		ECEA25V100L	Electrolytic	25V	100	1	
C447		ECEA25V10L	Electrolytic	25V	10	1	
C448		ECKW1H561KB	Ceramic	10^4V	560P	1	
C449		ECEA25V10L	Electrolytic	25V	10	1	
C450		ECCW1H271KB	Ceramic	10^4V	270P	1	
C451		ECQM1H102KZW	Polyester	100V	0.001	1	
C452		ECEA50V1L	Electrolytic	50V	1	1	
C453		ECEA16V100L	Electrolytic	16V	100	1	
C454		ECCW1H560KC	Ceramic	10^4V	56P	1	
C455		ECEA50V1L	Electrolytic	50V	1	1	
C456		ECEA6V47L	Electrolytic	6V	47	1	
C457		ECEA50V1L	Electrolytic	50V	1	1	
C458		ECCW1H560KC	Ceramic	10^4V	56P	1	
C459		ECEA50MR47	Electrolytic	50V	0.47	1	
C460		ECEA6V47L	Electrolytic	6V	47	1	
C461		ECQM1H272KZW	Myler	100V	0.0027	1	
C462		ECEA50MR47	Electrolytic	50V	0.47	1	
C464		ECKW1H681KB	Ceramic	10^4V	680P	1	
C465		ECEA50MR47	Electrolytic	50V	0.47	1	
C466		ECEA6V47L	Electrolytic	6V	47	1	
C467		ECQM1H472KZW	Myler	100V	0.0047	1	
C468		ECEA50MR47	Electrolytic	50V	0.47	1	
C469		ECEA16V100L	Electrolytic	16V	100	1	
C470		ECEA50V1L	Electrolytic	50V	1	1	
C472		ECEA16V10L	Electrolytic	16V	10	1	
C473		ECEA10V33L	Electrolytic	10V	33	1	
C474		ECEA16V10L	Electrolytic	16V	10	1	
C475		ECQM1H683KZW	Myler	100V	0.068	1	
C476		ECEA16V10L	Electrolytic	16V	10	1	
C477		ECEA16V100L	Electrolytic	16V	100	1	
C478		ECQM1H103KZW	Myler	100V	0.01	1	
C479		ECQM1H102KZW	Myler	100V	0.001	1	
C480		ECEA50V1L	Electrolytic	50V	1	1	
C481		ECQM1H272KZW	Myler	100V	0.0027	1	
C482		ECEA50MR47	Electrolytic	50V	0.47	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C483		ECQM1H272KZW	Myler 100V 0.0027	1	
C487		ECEA50V1L	Electrolytic 50V 1	1	
C488		ECEA6V47L	Electrolytic 6V 47	1	
C489,490		ECEA25V4R7L	Electrolytic 25V 4.7	2	
C491		ECKW1H681KB	Ceramic 10^4V 680P	1	
C492,493		ECEA25V10L	Electrolytic 25V 10	2	
C494,495		ECEA50V1	Electrolytic 50V 1	1	
C496		ECQM1H153KZW	Ceramic 10^4V 0.015	1	
C497		ECEA25V100L	Electrolytic 25V 100	1	
C498		ECEA25V10L	Electrolytic 25V 10	1	
C499		ECKW1H561KB	Ceramic 10^4V 560P	1	
C4100		ECEA25V10L	Electrolytic 25V 10	1	
C4101		ECCW1H271KC	Ceramic 10^4V 270P	1	
C4101		ECEA50V1L	Electrolytic 50V 1	1	
C4107		ECQM4273KZW	Myler 400V 0.027	1	
C4108		ECQM1H333KZW	Myler 100V 0.033	1	
C4109—4110		ECQM1H103KZW	Myler 100V 0.01	3	
C4112		ECEA50V1L	Electrolytic 50V 1	1	
C4113,4114		ECV1ZW50X44	Trimmer 1W 1—50pF	2	
C4115,4116		ECQM1H103KZW	Myler 100V 0.1	2	
C4117,4118		ECCW1H271KC	Ceramic 10^4V 270P	2	
			Coils		
L402		VLT12		1	
L403		VLT0039		1	
L404		VLT22		1	
L405,406		VLT12		2	
L407		VLT0039		1	
L408		VLT22		1	
L410		VLQ15S271K	270μH	1	
L412		VLQ24F102K25	1mH	1	
			Transformers		
T401,402		QLT2D10A		2	
T403		VLT0038		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Connectors		
P41—44		VJP0089	3 Pin	4	
P46		VJP0090	5 Pie	1	
P47,48		VJP0089	3 Pin	2	
P49		VJP0091	10 Pin	1	
P410		VJP0091	10 Pin	1	
P411,412		VJP0089	3 Pin	2	
P413		VJP0090	5 Pin	1	
			Relays		
RY401—403		VSY222		3	
			Miscellaneous		
		VJH24	Check Terminal	20	
		TEL312	GT Pin	6	
		VMA2757	Angle, Upper	1	
		VMA2763	Angle, Lower	1	
		XTW3+6MFX	Screw	6	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
HEAD AMPLIFIER CIRCUIT BOARD ASSY					
			Transistors		
TR501		2SC1047-C	Si NPN RF Amp.	1	
TR502		2SC1359-B	Si NPN RF Amp.	1	
TR503		2SC828	Si NPN Small Signal Amp.	1	
TR504		2SC1216	Si NPN	1	
TR505		2SC828	Si NPN Small Signal Amp.	1	
TR506		2SC1047-C	Si NPN RF Amp.	1	
TR507		2SC1359-B	Si NPN RF Amp.	1	
TR508		2SC1216	Si NPN	1	
TR509		2SC828	Si NPN Small Signal Amp.	1	
TR510		2SC1359-B	Si NPN RF Amp.	1	
TR511,512		2SC828	Si NPN Small Signal Amp.	2	
TR513		2SC1359-B	Si NPN RF Amp.	1	
TR514		2SC828	Si NPN Small Signal Amp.	1	
TR515		2SC1317	Si NPN AF Power Amp. & Driver	1	
			Diodes		
D501		OA95	Ge General Use/High Breakdown Voltage	1	
			Resistors		
R501,502		ERD25TJ100	10	2	
R503		EVLS6AA00B24	Variable 20K	1	
R504		ERD25TJ104	100K	1	
R505		ERD25TJ153	15K	1	
R506		ERD25TJ821	820	1	
R507		ERD25TJ102	1K	1	
R508		ERD25TJ683	68K	1	
R509		ERD25TJ183	18K	1	
R510		ERD25TJ222	2.2K	1	
R511		ERD25TJ330	33	1	
R512		ERD25TJ102	1K	1	
R513		ERD25TJ391	390	1	
R514,515		ERD25TJ223	22K	2	
R516		ERD25TJ562	5.6K	1	
R517		ERD25TJ222	2.2K	1	
R518		EVLS6AA00B24	Variable 20K	1	
R519		ERD25TJ104	100K	1	
R520		ERD25TJ153	15K	1	
R521		ERD25TJ821	820	1	
R522		ERD25TJ102	1K	1	
R523		ERD25TJ683	68K	1	
R524		ERD25TJ183	18K	1	
R525		ERD25TJ222	2.2K	1	
R526		ERD25TJ330	33	1	
R527		ERD25TJ102	1K	1	
R528		ERD25TJ391	390	1	
R529,530		ERD25TJ103	10K	2	
R531		ERD25TJ222	2.2K	1	
R532		EVLS6AA00B23	Variable 2K	1	
R533		ERD25TJ473	47K	1	
R534		ERD25TJ153	15K	1	
R535		ERD25TJ222	2.2K	1	
R536		ERD25TJ331	330	1	
R537,538		ERD25TJ103	10K	2	
R539		ERD25TJ681	680	1	
R540		EVLS6AA00B23	Variable 2K	1	
R541		ERD25TJ473	47K	1	
R542		ERD25TJ153	15K	1	
R543		EVLS6AA00B23	Variable 2K	1	
R544		ERD25TJ221	220	1	
R545		ERD25TJ101	100	1	
R546,547		ERD25TJ103	10K	2	
R548		ERD25TJ330	33	1	
R549		ERD25TJ820	82	1	
R550		ERD14VJ471	470	1	
			Capacitors		
C501		ECV1ZW20X44	Trimmer 1W 1—20pF	1	
C502		ECEA50V1L	Electrolytic 50V 1	1	

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C503		ECKW1H103PF3	Ceramic 10'V 0.01	1	
C504		ECQM1H473KZW	Myler 100V 0.047	1	
C505		ECKW1H103PF	Ceramic 10'V 0.01	1	
C506		ECQM1H473KZW	Myler 100V 0.047	1	
C507,508		ECKW1H103PF	Ceramic 50V 0.01	2	
C509		ECV1ZW20X44	Trimmer 1W 1—20pF	1	
C510		ECEA50V1L	Electrolytic 50V 1	1	
C511		ECKW1H103PF	Ceramic 10'V 0.01	1	
C512		ECQM1H473KZW	Myler 100V 0.047	1	
C513		ECKW1H103PF	Ceramic 10'V 0.01	1	
C514		ECQM1H473KZW	Myler 100V 0.047	1	
C515,516		ECKW1H103PF	Ceramic 10'V 0.01	2	
C517		ECKW1H681KB	Ceramic 10'V 68P	1	
C518		ECKW1H103PF	Ceramic 10'V 0.01	1	
C519		ECEA16V10L	Electrolytic 16V 10	1	
C520		ECKW1H103PF	Ceramic 10'V 0.01	1	
C521		ECV1ZW50X44	Trimmer 1W 1—50pF	1	
C522		ECKW1H121KB	Ceramic 10'V 120P	1	
C523		ECQM1H472KZW	Myler 100V 0.0047	1	
C524		ECEA16V47L	Electrolytic 16V 47	1	
C525		ECKW1H103PF	Ceramic 10'V 0.01	1	
			Coils		
L501,502		VLQ80F180K	High-Frequency Choke 18μH	2	
L503		VLT0039	Variable	1	
L504		VLQ80F100K	High-Frequency Choke 10μH	1	
L505		VLQ80F102K	High-Frequency Choke 1mH	1	
L506		VLQ80F221K	High-Frequency Choke 220μH	1	
			Transformers		
T501,502		ELT10S932	High-Frequency	2	
			Relay		
RY501		VSY206A		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Check Terminals		
		VJH24	Check Terminal	7	
			Connectors		
P51,52		VJP0089	3 Pin	2	
P53		VJP0091	10 Pin	1	
P54,55		VJP0089	3 Pin	2	
			Miscellaneous		
		VSC0245	Shield Case	1	
		VSC0246	Shield Case	1	
		VSC0247	Shield Case	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		JACK BOARD ASSY			
		VJS76	Remote Control Connector	1	
		VGN1058	Decorative Jack Board	1	
		VJF0016	Fuse Holder	1	
		VJH8	Lug	1	
		VJH0082	Ground Terminal	1	
		VJH23	Check Terminal	4	
		VJJ0018	RCA Pin Jack (1 P)	1	
		VJJ0019	RCA Pin Jack (2 P)	2	
		VJJ0021	Mic Jack	2	
		VJJ0016	RF Output Jack	1	
		VJP0083	AC In Plug	1	
		VJS1003	Coacial Connector	2	
		VJS1	8 Pin Socket	1	
		VMZ0212	Cover, Line Filter	1	
			Resistors		
R6313,6314		ERD25TJ334	330 K	2	
R6315,6316, 6325 – 6328		ERD25TJ102	1 K	6	
			Connectors		
		VJP0091	10 Pin	1	
		VJP0092	3 Pin	3	
		VJP0094	10 Pin	1	
			Filter		
		VTQ0005	Line	1	
			Capacitors		
		ECKD1HS472MD	Ceramic (Across Line) 0.0047	2	
			Miscellaneous		
		XNG3FX	Nut	10	
		XSN3+6FXKS	Screw	9	
		XSN3+8FXKS	Screw	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		XTN3+6FFKS	Screw	2	
		XTV3+6FFXS	Screw	4	
		XTW26+10LFX	Screw	2	
		XWA3AFX	Spring Washer	10	
		XYN3+C8FXKS	Screw	2	

TSP NV9240

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Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			WIRING A ASSY		
			Connectors		
		VJS1020	3 Pin	9	
		VJS1021	5 Pin	7	
		VJS1022	10 Pin	16	
		VJS1023	Socket	188	